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REHABILITATION LITERATURE

National Society for
Crippled Children and Adults

Rehabilitation Literature is intended for use by professional personnel and students in all disciplines concerned with rehabilitation of the handicapped. It is dedicated to the advancement of knowledge and skills and to the encouragement of cooperative efforts by professional members of the rehabilitation team. Goals are to promote communication among workers and to alert each to the literature on development and progress both in his own area of responsibility and in related areas.

As a reviewing and abstracting journal, *Rehabilitation Literature* identifies and describes current books, pamphlets, and periodical articles pertaining to the care, welfare, education, and employment of handicapped children and adults. The selection of publications listed and their contents as reported is for record and reference only and does not constitute an endorsement or advocacy of use by the National Society for Crippled Children and Adults.

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Books for review and correspondence relating to feature articles and other editorial matters should be addressed to the editor. He will welcome your suggestions.

REHABILITATION LITERATURE

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The Care and Guidance of the Child with a Handicap

In the newly published book *The Child with a Handicap* the team approach to his care and guidance is discussed from the point of view of physicians, teachers, social workers, and parents. Dr. Samuel M. Wishik in the first chapter lists and comments on a 25-point credo that the physician sets for himself in counseling the families of handicapped children. In a later chapter Elizabeth M. Boggs, Ph.D., of the National Association for Retarded Children, offers suggestions that will aid parents in making decisions for the welfare of their children. These two guides—one for physicians and one for parents—are reprinted here through the courtesy of the editor, Dr. Edgar E. Martmer, and Charles C Thomas, Publisher. The book will be reviewed by a well-known medical authority in a future issue of *Rehabilitation Literature*.

Guides for Parents

Elizabeth M. Boggs, Ph.D.

1. Have a careful diagnostic study made as soon as you think "something is wrong."
2. If you are not convinced of the accuracy of the first diagnosis, seek an additional expert opinion, preferably from a center offering specialized services in the area of handicap which is suspected in your child's case.
3. If your child's handicap is a long-term one with implications for his adult life, establish contact with the most suitable agency in your home community which can offer you continuing practical counseling in planning for your child and in taking advantage of the resources of your locality and state.
4. Inform yourself about the general class of handicapping conditions of which your child's case is a particular example.
5. Make contact with other parents.
6. Get all the expert advice you need, but make your own decisions.
7. Have confidence in your own abilities as parents.
8. Keep step with each other in your learning and planning for your child.
9. Get help in working out a program of home training in self care, safety, and activity for your child.
10. Give thought to the modifications of the physical environment.
11. Begin early to accustom your child to the company of people outside the family circle and to being cared for occasionally by outsiders.
12. Start working up an educational plan early, several years before your child will be ready for formal schooling, if possible.
13. Don't overlook the importance of fun and change.
14. Help your child to understand his handicap.
15. Do not let your child lean on his handicap.
16. Be frank with your children.
17. Look your child's future squarely in the face and help him to do so.
18. Take part in community action.

The Role of the Physician

Samuel M. Wishik, M.D., M.P.H.

1. I realize that externally invisible conditions, such as heart disease or deafness, can be just as crippling as a paralyzed limb.
2. When a child is found to have a handicapping condition, I look carefully for other defects—because multiple handicaps in the same child occur more often than single handicaps.
3. I do not turn a diagnosis into a label for a child. I do not turn adjectives into nouns. He is not "an epileptic;" she is not "a diabetic."
4. When central nervous system involvement exists, I know that the manifestations can be neuromuscular, sensory, intellectual, convulsive and emotional, and at times even more subtle and elusive.
5. I know that various medical specialists can help and that there are elements in the care of the handicapped child that are outside the field of medicine.
6. I am not an amateur psychometrist. I do not make flip judgments about a handicapped child's intelligence.
7. I try to find out what is known about the genetics of a condition, without injecting my own desires for unwarranted optimism or pessimism.
8. I do not make decisions for the family. I lay all the facts clearly before them so that they can arrive at their own solution.
9. I advise parents on immunization, safety, and other means of preventing their children from becoming handicapped.
10. In the health supervision of well children, I am on the lookout for signs of incipient conditions that may lead to handicaps.
11. When a child has had an unfavorable health experience that has potential for producing a particular handicap later, I classify that child on my records, as

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REHABILITATION LITERATURE

Article of the Month

Problems of Sensorimotor Learning in the Evaluation and Treatment of the Adult Hemiplegic Patient

Glenn G. Reynolds, M. D.
in collaboration with
Signe Brunnstrom, M. A.

About the Authors . . .

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Miss Brunnstrom is a consultant at the Institute of Physical Medicine and Rehabilitation, New York City, and instructor in physical and occupational therapy at Columbia University. She received her B.S. at Uppsala College, Sweden, and her M.A. degree from New York University.

This original article was written especially for Rehabilitation Literature.

Therapeutic problems that the physiatrist and paramedical personnel are called upon to deal with pertain so frequently to hemiplegia, usually caused by cerebrovascular disease and concomitant vascular accidents. The time and energy expended in therapy in these patients are rarely reflected in functional restoration or significant gains in the involved side, particularly in the highly skilled acts that the upper extremity is called upon to perform. It is true that the patient may profit through the training in activities of daily living. It is also true that the patient may become ambulant in a satisfactory manner, probably due to the reciprocal function of locomotion and the fact that the extensor muscles usually possess the greatest degree of spasticity, which can be utilized satisfactorily for necessary weight bearing. But most disappointing is the failure to develop the functional use of the upper extremity. In this discussion we shall pinpoint a few problems occurring in the evaluation and treatment of the hemiplegic patient, particularly if functional results are to be a realistic goal of therapy. We believe that the physiologic mechanisms relating to motor response through sensory stimulation or its absence will assume a larger significance in our evaluation and treatment of these patients. We hope thus to expand our understanding and the scope of physical therapeutic procedures to achieve the maximal rehabilitation potential in these patients.

Neuromuscular Physiology

In rehabilitation centers, awareness and interest in so-called neuromuscular facilitation are increasing. This is of great interest to those of us working with patients having an upper motor neuron lesion,

especially hemiplegic patients. This concept assumes that motor responses may be facilitated by technics that a therapist employs or trains a patient to use. The method of facilitating these responses is generally supposed to be through superficial and deep sensory stimulation in which an afferent barrage of impulses is set up in a variety of therapeutic procedures. These are frequently referred to as reflex in character. This discussion will not elaborate at length on the neurophysiology of sensorimotor activity nor report the results in patients who have been treated with the application of specific and general sensory stimulation. We have been trying to assess these theories and, while doing so, have become very aware of pitfalls in the evaluation and treatment of the hemiplegic patient. As most therapists observe similar problems, this becomes a matter of focusing attention rather than elaborating something completely new.

A brief review of neuromuscular physiology may be appropriate at this time. Our general understanding of topographical assignments of the motor system and the sensory system is not complete, as shown by Walshe in his review of the research on the giant cells of Betz.[1] He pointed out that there are almost three quarters of a million pyramidal fibers and only 30,000 Betz cells. Gooddy,[2] reviewing the problems of sensation and motion, called attention to the fact that the control or perception of afferent impulses arriving at the higher centers of the brain is widely distributed and does not necessarily follow the past conceptions of classic areas of pure motion or sensation. Gooddy also reviewed the evidence that the ipsilateral and contralateral cortex must both be ablated in the production of permanent loss of impulses in the pyramidal fibers of the corticospinal tract. Bertrand,[3] by electrode measurements, has shown that the supplementary cortex on the mesial side of the brain contributes a majority of the uncrossed fibers of the corticospinal tract. Travis and Woolsey[4] have shown that the amount, rate, sequence, and symmetry of ablation vary the resulting function. Their animals, which had bilateral and complete ablations followed by very intensive physical training, were able to walk, stand, feed, and right themselves, in varying degrees. They concluded that subcortical centers have greater functional capacity than previously believed.

Let us turn our attention peripherally for a moment on the receptor-effector units, particularly those of the muscle. Ralston recently summarized the information on the small motor nerve system[5]; some of the highlights will be reviewed here. The large anterior horn cells in the spinal cord send out large fibers to control ordinary muscle activity, known as A-alpha fibers. In the cord there is another group of motor neurons with corresponding fibers. These supply the modified (intrafusal) muscle fibers that make up the muscle spindles. These muscle spindles are specific types of end organs and when stimulated send sensory impulses into the cord via the dorsal root through afferent fibers that synapse with the large alpha horn cells. In addition to the afferent impulses just described, large fibers from the Golgi tendon organ also enter the cord by way of the dorsal root. These synapse with the internuncial neurons connecting the long sensory tracts, the gamma neurons, and the alpha neurons.

The interaction of these fibers is illustrated by the reaction to the stretch reflex. When a blow against the tendon causes stretching of the muscle, the muscle spindles are also stretched and send afferent impulses into the cord to synapse with the large alpha horn cells or neurons, which activate the muscle fibers and cause a contraction. The muscle spindles then record the length of the muscle and supply the central nervous system with continuous information about the length of the muscle. The fibers of the spindle contract under efferent stimuli from the gamma fibers; this stretches a "nuclear bag," which sends out the afferent impulses previously referred to. The Golgi tendon organs do not have to participate in this reaction as shown by anesthetizing them. Contraction of the muscle is followed by accommodation of the spindle to a relaxed attitude resulting in fewer afferent discharges. The Golgi tendon organ may be stimulated by either contraction of the muscle or passive stretching. The Golgi afferent fibers synapse with both alpha and gamma neurons, and their influence is believed to be inhibitory in character. If sufficient tension on the tendon is established, motor activity may be inhibited due to the predominating influence of the Golgi afferents over the spindle afferents. Excitation of the main motor alpha neurons is dependent on the inflow from the spindle afferents, the receptive level of which is set by the gamma efferents. In the absence of this afferent support, the alpha neurons may not be capable of responding to influences or stimuli coming from higher motor areas. There is evidence that autogenic inhibition dominates autogenic excitation.

Hagbarth[6] studied ipsilateral reflex motor responses elicited from the skin of the hind limb in decerebrated and spinal cats and showed that, for both flexor and extensor muscles, specific excitatory and inhibitory skin areas could be mapped out. (Previously it was believed that all sensory skin stimuli precipitated a flexion response.) Extensor muscles were inhibited for most parts of the limb but excited from the area directly over the stimulated muscle. Flexor muscles were excited for most parts of the limb but inhibited from a skin area mainly localized over the antagonistic extensor muscle. There is no specific correlation between the different skin areas described and the peripheral skin fields of the cutaneous nerve trunks. Cutaneous afferents from different skin areas are intermingled in the same nerve stem. When the dorsal roots were sectioned, it was found that the central representation of these skin areas does not correspond to any specific

segmental organization of the skin efferents. Eldred and Hagbarth,[7] carrying this study further, showed that, in relation to the gamma efferents, activity was facilitated from skin over the muscle and was inhibited from other areas. Thus any facilitation or inhibition of gamma motor neurons—as for example, in the skin reflexes—could indirectly cause parallel facilitation or inhibition of the alpha motor neurons. Numerous other factors control this complex but still poorly understood mechanism.

Evaluation of the Hemiplegic

It thus becomes evident that in the hemiplegic patient neurophysiologic mechanisms are of more than academic interest. Their clinical significance seems important in devising more satisfactory methods of treating these patients. From a practical standpoint one may generally classify the hemiplegic patient as physiologically partially decerebrated. Our most important concern in a patient's recovery is perhaps the evaluation of not only the motor status but his sensory integration as well. We have previously pointed out that the evaluation of motor status currently attempted in our therapeutic rehabilitation centers is prognostically useless for the prescribing physiatrist.[8] Unless the physician has a clear concept of the sensory evaluation, his prescription may cause unnecessary therapeutic effort on the part of the therapist. As Maringer[9] recently pointed out, failures in the rehabilitation process in patients of this type are frequently ascribed to lack of proper motivation on the part of the patient by both the physician and the therapist. All hemiplegic patients therefore should have a comprehensive neurological examination prior to the prescription of any rehabilitation program. Since the patient may not be able to enter into the learning process the patient and his family may thus be saved needless expense and discouragement, and time and effort on the part of the patient and therapist need not be wasted.

It is well understood that cerebral vascular accidents are most frequently due to thrombosis of the branches of the middle cerebral artery. This blood supply nourishes the internal capsule through which radiate a majority of both sensory and motor fibers to the contralateral side of the body. These are connected above this level with association areas that give much to the normal learning process. Interference with this learning process by cerebral destruction may influence the patient's motivation, as success in learning stimulates motivation and good motivation facilitates learning. This type of destruction may then lead to failure and frustration. Belmont[10] has pointed out four main problems in this area. First are those resulting from sensory changes. Normal movement requires intact sensation from the affected limb, not only for purposeful motion but also for strength. If the sensation is completely lost, substitution is necessary, perhaps by use of vision, hearing, or exaggeration of body movements, which pick up sensory impulses from adjacent intact sensory areas. If the extinction phenomenon is demonstrated, the patient will respond only to the strongest stimulus and not necessarily to the total field. As one can see, this may even affect successful performance of the activities of daily living (ADL). Second, if body image is disturbed, the patient may mislocalize body parts, that is, an organic change of association may produce in a patient the weird impression that he is walking on his knee or grasping with the hand of some one else. This fear is rarely verbalized to the physician or therapist because its significance to the patient is associated with something that is psychotic. Indeed, the superficial evaluation of some clinical psychologist may interpret it in this light. These patients may manifest considerable fear and fail to perform as directed. Third, they may be incapable of abstract thinking and respond only to superficial words rather than to the ideas involved. This may be minimized by use of simple instruction, use of pantomimes if necessary, and elimination of distractions in the therapeutic setting. These patients should be taught only one new idea or procedure at a time. Last, the patient may suffer from low frustration tolerance and react by a catastrophic physical response such as increase in pulse rate, syncope, shortness of breath, or sweating. In these cases it is considered wise to return the patient to previous successes, or to cease training until the patient regains self control. All these problems generally result from organic interference with the ability of the patient to learn and are not to be misconstrued in connection with the patient's premorbid personality or inadequacies. Of course, in the hemiplegic patient inadequate personality must be taken into account as a possibility that would adversely affect his motivation, but in organic disturbances the problem may become so complicated as to defy satisfactory rehabilitation even when the patient seemingly has good motor function.

It is true that the referring physician generally analyzes the sensory status and gives a gross motor evaluation prior to treatment. The therapist customarily attempts a more careful muscle test in some of these patients, but not without considerable frustration. At times the quadriceps is recorded in testing as poor, but then the patient gets up and walks and considerable tone is detected so that a grade of good should be recorded.

Facilitation of Responses

In facilitating neuromuscular responses, it is imperative that we learn first how to measure a patient's motor response objectively, so that, in treatment, any therapeutic procedures using such technics may be better evaluated. It is desirable to compare these responses with those of patients with similar pathology given conventional therapy or no treatment. This takes into consideration patients with a spontaneous return of function. In this evaluation the therapist must gain insight into certain cursory aspects of sensory evaluation. We would not begin to advocate that the therapist try to perform anything resembling the

comprehensive neurological evaluation previously recommended. We are recommending, however, that the therapist who works with brain-damaged patients should have some idea if commands or instructions are getting through to the patient in the most satisfactory manner. The therapist should realize that responses obtained from the application of sensory stimuli may not necessarily be of therapeutic or functional importance. This critical approach should eliminate wishful thinking on the part of the therapist.

In following the sequence of events in the restoration of motor function after hemiplegia, we have noted that the observations of Twitchell[11] on movement synergies in spontaneous return apply both to patients recovering spontaneously and to patients receiving therapy considerably after the period of optimal spontaneous restoration of motion. We are not prepared to say how much these two factors are intermingled in the success of a latent treatment program. In the majority of patients we have treated, we have seen motion returning in the sequence of from proximal to distal areas. The movement synergies described by Twitchell for flexion and extension show that, when motion does appear, it is usually seen first in the proximal muscles of the flexion synergy and then in the proximal muscles of the extension synergy. This highlights the fact that neither motor function nor testing can be accomplished early aside from these mass motion synergies. These findings are further confirmed by the associated reactions described by Simons, Riddoch and Buzzard, and Walshe.[12] Miss Brunnstrom[13] has previously commented on their use in the rehabilitation of patients with hemiplegia. These reactions usually follow the paths of the synergies of flexion and extension. The type of response generally depends on the reinforcement given by body positioning, neck reflexes, or mediation of other sensory impulses, such as muscular effort in another part of the body.

As pointed out previously,[11, 13] the flexion synergy of the upper extremity is characterized by elevation and retraction of the shoulder girdle, abduction and external rotation of the arm, and flexion and supination of the forearm. Frequently, hyperextension of the arm replaces abduction and external rotation. In the extension synergy, there is some protraction of the shoulder girdle, marked adduction and internal rotation of the arm, and extension and pronation of the forearm. It should be noted that no mention is made of the position of the wrists or fingers, for the response is not constant with either of these synergies. The flexion synergy of the lower extremity is characterized by flexion of the hip with slight abduction and external rotation, flexion of the knee, and dorsiflexion of the ankle with inversion of the foot. The extensor synergy of the lower extremity is characterized by a tendency toward hip extension, internal rotation, and adduction with knee extension and ankle plantar flexion.

Twitchell noted that recovery of movement in the upper extremity could generally be divided into three distinct stages. The first stage was dominated by proprioceptive reactions and the second by contactual stimuli, while the last was characterized by a seeming independence of movement upon such externally applied agents. In the first two stages vision had a facilitating effect, but by the time the grasp reflex had been established, exclusion of vision did not seem to affect the response profoundly. Movement freely projected in space without visual control is the last accomplishment to be attained. It was also observed that the first movements were facilitated stretch reflexes. Some have thought that, if spasticity could be abolished, willed movement might be easier to perform. However, when flaccidity persists, the prognosis for recovery is much poorer. We are not so concerned with the abolition of the spastic stretch reflex as in harnessing its diffuse hyperactivity. As recovery progresses from simple to more complex proprioceptive reactions, these are modified by contactual stimuli, each of which is in turn finally adapted to the purpose of the will.

Our own interest in the subject of neuromuscular facilitation has been largely directed to hemiplegic adults, because we are impressed with the great need for better therapeutic pursuits in these patients and because the majority have relatively stable courses as compared with other patients with upper motor neuron disease. This same philosophy applies even more appropriately to the cerebral palsied child. The work of the Bobaths, Fay, and others is well known. As we applied our interest and understanding, we became aware that, in eliciting various motor reactions, our enthusiasm increased about some responses that seemed to occur quite constantly. We also realized that if we are not objective in analyzing procedures we might become so emotionally involved that we fail to see if we are helping to improve patient function or just eliciting exciting reflex responses.

Standard Muscle Tests

Of course, objectivity is primarily a requirement of a good test, and this we have failed to find, particularly in the present forms of the standard muscle test.[14] We would not minimize its usefulness in application to patients with lower motor neuron disease or to intrinsic muscle disease, but certainly it seems inadequate in patients with upper motor neuron lesions with variable degrees of voluntary control to be assessed—particularly so in the case of hemiplegia. The grading used in standard testing is based on whether a muscle can perform with gravity eliminated, against gravity, or against gravity plus manual resistance; it is assumed that individual muscles can be tested separately. Furthermore, full range of motion has been a criterion for progression in grading.

In the hemiplegic patient multiple factors, such as spasticity and the influence of posture, of activity in

other parts of the body, of righting reactions, of tonic neck and labyrinthine reflexes, and of the grasp reflex, have defied objective measurement. It has often been observed that action against gravity and/or resistance may assist rather than inhibit the responses of hemiplegic patients. Therefore, gravity and resistance as used in the standard muscle test cannot be factors of measuring progress, as resistance frequently seems to reinforce the motor response through mobilization of sensory receptors. It may then be seen that the variable strength per se should not be a criterion for grading and that standard muscle testing has but little meaning in these patients.

A Test for Hemiplegics

We have developed a type of evaluation based on the understanding of these principles that attempts to correlate the progressive return of function within the paths of the synergies, into the final isolation of their components when the will is able first to modify and then become independent from them. This test, called "Hemiplegia—Classification and Progress Record," has been briefly reported elsewhere.[8] A more detailed discussion of its application should be appropriate to answer questions raised by the brevity of the aforementioned report. This test (see figure, page 168) is divided into two parts describing motion in the shoulder and elbow and in the wrist and hand. On the second page of the test is a list of abbreviations for the types of facilitation we most commonly use and for some of the reactions observed. By the time most of our patients are tested there is no longer any pure flaccidity, so we record the fact of relative flaccidity versus the spasticity present. This simply means that, if the hand, for instance, has already assumed a position of flexion but the fingers can easily be passively extended with no resistance, we would say the patient is essentially flaccid in the hand. The same principle applies to testing of motion of any other joint or joints in the extremity. The therapist tests for position sense, taking the good extremity and showing the patient the desired motion or motions. The therapist then moves the involved extremity and requests the patient to duplicate the motion using his normal extremity. When this is clear to the patient, he is asked to close his eyes and the performance is repeated. This serves to orient the therapist as to the relative ability of the patient to perceive and utilize sensory stimuli in the training process. During the course of treatment the proprioceptive or contactual stimuli will be applied meaningfully. Many neurological examinations fail to record proprioception other than the test of position sense of toes or fingers in space. However, the presence or absence of various cutaneous sensations for most of the body and stereognosis in the hand is usually recorded. As an aid in definitive finger training our form provides for recording finger tip recognition.

Level 1 of the shoulder and elbow test is used when no motion is initiated voluntarily. Level 1 may be modified by procedures such as the stimulation of the associated reactions if they produce motion. This is not uncommon and in fact is one of the first methods for eliciting a response in a hemiplegic patient who has not previously demonstrated voluntary motion. These may be evoked by the patient's sneezing, yawning, or laughing. Such motion may also be obtained by sudden noises, strong light, or emotional stimuli, but most uniformly by maximal resistance of the good extremities—for example, forceful total resistance of elbow flexion, with or without the assistance of the tonic neck postures. If motion does not occur, there will be an increase of tone in different muscles crossing a joint. The tone is due to contraction of muscles about the joints—the agonists and antagonists contracting simultaneously.

In level 2 of the shoulder and elbow test the date of occurrence of the synergies is recorded. A place is provided to describe the component parts first noted to be acting. Minimal initial voluntary response is noted. Level 3 records when both synergies or some components are initiated voluntarily; this may progress to full activation of both synergies through their full ranges of motion. If only partial range is present it is estimated in percentage of the same motion on the unaffected side. In the level 3 section are two major columns for results of tests on two dates separated by an appropriate interval. Under each of these sections the range of motion without facilitation is compared to the range with facilitation. The type of facilitation used is recorded by abbreviation. This may be done with each component of the flexion synergy for three major joints involved and in the same manner for the extension synergy. One can see that no specific type of ADL function is alluded to, because, for this to be present at the third level, there usually must be complete utilization of one or both synergies. However, the acts of lifting or pulling are easily recognized as part of the flexion synergy, while those of pushing or reaching for grasp are part of the extension synergy. Such activities seem easy to learn for many hemiplegic patients who previously had little or no motion.

In normal use of the upper extremity there is a choice of an almost infinite number of movement combinations, many of which may deviate from the hemiplegic synergies. The ability to perform movement deviating from the synergies is first recorded as part of level 4. Such deviation requires mixture of the synergies, in which case two strong components of the two synergies combine more easily than the weak ones. For example, elbow flexion, a strong component of the flexion synergy, combines rather easily with the action of the pectoralis major, which muscle constitutes a strong component of the extension synergy. This "mixed" synergy is utilized in hand to mouth movement. Most of this category requires

HEMIPLEGIA - CLASSIFICATION AND PROGRESS RECORD

Shoulder and Elbow (tested in sitting position)

Name _____ Age ___ Date of onset _____ Side affected _____

Essentially flaccid ____ spastic ____ pos. sense _____

1. NO VOLUNTARY MOVEMENT INITIATED Date _____ _____

2. SYNERGIES (OR COMPONENTS) APPEARING, MINIMAL RESPONSE ON VOLUNTARY ATTEMPT (describe:)

Date _____ Flexion synergy _____

Date _____ Extension synergy _____

3. BOTH SYNERGIES OR SOME COMPONENTS INITIATED VOLUNTARILY

		Date					
		range, no facilit.	range w. facilit.	type of facilit. employed	range, no facilit.	range w. facilit.	type of facilit. employed
Flexion Synergy	Shoulder girdle: Elevation						
	Shoulder girdle: Retraction						
	Arm: Abduction						
	Arm: Ext. Rotat.						
	Forearm: Flexion						
	Forearm: Supination						
Extension Synergy	Shoulder, mainly pec. major						
	Elbow Extension						
	Pronation						
4. MOVEMENTS DEVIATING FROM BASIC SYNERGIES	arm elevated above horiz.						
	arm backward elbow straight						
Extension of elbow	obliquely sideward						
	obliquely upward						
Elbow at 90 degrees	Pronation						
	Supination						
5. RELATIVE INDEPENDENCE OF BASIC SYNERGIES	horiz. abduction elbow extension						
	supination, arm side - horiz.						

6. RECIPROCAL MOVEMENTS AND SPEED TESTS (Strokes/5 sec.)

		Date	
"Drumming" (w. closed fist)			
Hand from lap to chin	normal		
	affected		
Hand from lap to opposite knee	normal		
	affected		

** Range is estimated and recorded as 0, 25%, 50%, 75%, & 100%, as compared to unaffected side.

Note: for abbreviations of type of facilitation, see page 2.

HEMIPLEGIA - CLASSIFICATION AND PROGRESS RECORD

Hand (tested in sitting position)

Date

_____ Hand predominantly flaccid _____ Spastic _____

_____ Pos. of wrist, thumb, & fingers: (1) at rest _____

_____ (2) Flex. syn. _____

_____ (3) Ext. syn. _____

_____ Position sense _____

_____ Finger tip recognition _____

_____ WRIST: ext. syn. _____

_____ Extension w. fixation for grasp: flex. syn. _____

_____ any position _____

_____ Flexion _____

_____ Circumduction _____

_____ FINGERS AND THUMB: 1. NO VOLUNTARY MOVEMENT INITIATED _____

_____ 2. HOOK GRASP: brief-case handle placed in hand _____

_____ 3. LATERAL PREHENSION: paper betw. thumb & index * _____

_____ 4. PALMAR PREHENSION: pen in position for writing* _____

_____ 5. TIP PREHENSION: pick up bead* _____

_____ 6. SPHERICAL GRASP: grasp ball* _____ catch underhand ___ overhead ___ throw ___

_____ 7. EXTENSION: (describe) _____

_____ 8. INDIVIDUAL FINGER MOVEMENTS: "typing" motion _____

_____ _____

_____ 9. FINE COORDINATION: (a) button & unbutton shirt _____

_____ (b) use thumb tacks _____

*Grasp and release

Abbreviations indicating type of facilitation, etc.

HRR	head rotated right	HAP	held after positioning
HRL	head rotated left	MES	muscles in elongated state
HF	head forward	RES	resistance
HB	head backward	BIL	bilaterally
TF	trunk forward		
TB	trunk backward	d	difficulty
AOH	arm over head	awk	awkward
ST.R.	stretch reflex	mcc	marked cocontraction
SSS	sensory surface stimulation	ml	marked latency
FS	forearm supinated	tr	tremor
FP	forearm pronated	cl	clonus

more isolation from the extension synergy than the flexion synergy. The first step is for the arm to be brought above the horizontal plane regardless of the position of the elbow. Next the arm is placed backward with the elbow straight in the position anatomists generally call arm extension with forearm extension. The next step is to determine if the patient can extend the elbow when the arm is elevated in the oblique position, that is, midway between the components of shoulder abduction and flexion. The final step is the same activity with abduction above the horizontal plane and shoulder flexion, as employed in overhead reaching.

Activities that require the arm to be abducted beyond 90 degrees and those in which the arm is brought behind the body require the activation of muscles not necessarily component parts of the basic synergies. The serratus anterior, the rhomboids, the latissimus dorsi, and the teres major belong in this group. Activation of these muscles presents considerable difficulty, but it may be obtained with facilitative technics. A part of level 4 is the isolation of pronation and supination with the elbow at 90 degrees. At this stage the elbow is neither under full influence of the flexion synergy nor yet completely a part of the extension synergy.

Level 5 measures the relative independence of the shoulder and the elbow from the basic synergies. A combination of extension of the elbow with supination of the forearm is extremely difficult to perform since these movements belong to opposite synergies and are weak components of their respective synergies. The extension of the elbow with the arm abducted horizontally is tested before the more complex movement of supination is recorded. It will be seen that this progression in grading is developed out of the basic synergies, as less reflex motion is elicited and more cortical volitional control becomes evident.

In level 6, the last level for the shoulder and elbow, the speed of a reaction is tested and compared to the performance on the good side. This is further isolated if the movement can be performed reciprocally with the normal extremity. The movement of "drumming" is performed against a pillow placed in the patient's lap. The fists are closed and the ulnar side of the hand hits the pillow. Movement is essentially at the elbow, with some minor participation of both proximal and distal joints. A stop watch is used and the speed recorded as the number of strokes per five seconds. In testing, the hand movement from lap to chin is first performed on the normal side. The head must not bend forward to meet the hand. A stroke is considered a complete excursion from the lap to the chin and back to the lap. The plane of this movement resembles the flexion synergy. In testing movement of the hand from the lap to the opposite knee the patient sits erect with hand in lap (usually the hand is at rest near the medial surface of the proximal portion of the thigh on the side of involvement). The patient reaches out to touch the opposite knee. This motion resembles the extension synergy. Again a stroke is a complete excursion.

The second part of the test is the evaluation of motion of the hand and wrist as relating to function. As mentioned earlier, we have found no constant correlation of the wrist or hand with the synergies. We record the position of the wrist and the hand at rest, as well as in either of the synergies activating the shoulder and elbow. Grasp and release constitute perhaps the most important function of the hand. For grasp, fixation of the wrist in extension is imperative if success in grasping and holding an object is to be obtained. A mass grasp with automatic wrist extension is frequently obtained with the extension synergy. When a "drop wrist" is present, extension is frequently elicited by sensory stimulation. In testing wrist flexion, differentiation should be made between spastic tension and voluntary contraction. Radial and ulnar deviations are not tested as separate items, as these movements are part of circumduction. Adequate space is provided on the right of the test sheet for notations. A place is provided on the left for recording the date that each sequential function becomes apparent.

The grasp and release of the hand is usually the measure of the functional relationships of the thumb to the various parts of the hand and fingers. The first six groups of this section measure this sequential return of function. It is patterned after the prehension types described by Schlesinger.[15] The first example is illustrated by the hook grasp seen in the typical hemiplegic hand, which might be used in holding a bag or a brief case by the handle. Lateral prehension is frequently not difficult for the hemiplegic to master and is demonstrated by the approximation of the side or palmar surface of the thumb to the side of the index finger. This action is simulated when one holds a piece of paper after this fashion. According to Taylor and Schwarz,[16] palmar prehension is by far the most commonly employed hand synergy both for "pick up" and for "held for use" seen in normal people. This is the usual position maintained in holding a pen for writing.

When the patient is able to use a more discrete motion of the thumb, tip prehension is the next level of function. The hand may hold beads or other small objects between the thumb tip and the tips of any of the other fingers. It should be noticed that release of an object is difficult for a hemiplegic patient at all levels above the hook grasp stage, because reflexly the fingers tend to close when an object touches the palmar surface of the fingers and the hand. The next level is that of spherical grasp, and a ball is used to test this motion and the integration of pronation and supination of the forearm that is correlated with the ability of the patient to catch a ball and throw it, first underhand and then overhead. The latter involves all

the complex motion demonstrated as a gross return of normal motor function.

As release is not necessarily parallel with active finger extension, a separate place is provided for description of extension. It may appear at any stage in the development of the finger flexion or prehension motions. As the highest level of cortical control become manifest, the patient is first able to participate in reciprocal finger motions, such as typing. Finally the fine coordination necessary to discretely button and then unbutton a shirt is observed. We consider that complete functional recovery has been made by a patient who is able to hold thumb tacks in the palm of his involved hand, and, taking them one at a time, push them into a board with his eyes closed.

Influences on Recovery of Function

One will recognize that, though a classification of progress was suggested, the actual degree of recovery may proceed through a long interval in one grade, and a very short one in another. Also there may occasionally be some overlapping in gradation of function. In this evaluation, specific type ADL functions are tested in the hemiplegic in relation to the basic synergies and their progressive departure from them. We have also indicated some of the methods of eliciting these responses. To say that these reactions are all that is necessary would be a mistake. These seem to us to be the most functional as we test and work with the patient in the most common position of function for a disabled individual, sitting. When training is begun, certain other considerations of activity may be profitably utilized. Among these are the other influences of posture on the motions of the body parts. The development of motion may of necessity sometimes begin with the patient in the recumbent position. If the patient changes his position, a redistribution of tension of the body musculature may be observed. In the supine position, tension increases in the extensors, thus facilitating voluntary extension. In the prone position extension is inhibited and flexion facilitated. Sidelying facilitates flexion of the uppermost extremities and extension of the lowermost extremities. Standing often causes strong contraction of the extensors of the lower and the flexors of the upper extremities on the involved side.

The influence of rotation of the head is particularly noticeable and usually follows the descriptions of Magnus and deKleijn[17] (tonic neck reflexes). Occasionally, both flexion and extension appear to be facilitated by rotation of the head toward the affected side. This may be related to the patient's need to see the position and the motion of the extremity in the absence of proprioception. In these cases one wonders if the relation of the extraoccular motion stimulates or is in series with the labyrinthine reflexes to supply a strong stimulus in the absence of tonic neck reflexes. Also the relationship of one segment of a limb to another in space may have a facilitative or inhibitory effect on movemnt. For example, if the forearm is pronated, elbow extension may succeed well, while it may be altogether inhibited with the forearm supinated. Intersegmental posture of proximal joints also affects responses of fingers and thumb. In the light of the earlier discussion of the reflexogenous zones of Hagbarth, it is evident that, if one is trying to facilitate a motion and allows the patient to have contactual stimuli of the antagonists, inhibition of the desired motion may be the result. This same principle holds true for other stimuli, except the strong nociceptive stimulus, which can cause a specific reaction regardless of what other stimuli are involved. An illustration is: when the fourth or ring finger is flexed and maximally squeezed, finger extension is produced in the other fingers irrespective of other positions or stimuli of the hand or proximal parts.[18] Very definite facilitative or inhibitory effects have been observed simultaneously with the desired motion in a particular part of the extremity when several parts of the body are positioned or moved.

Conclusions

In conclusion we realize that the integration of the nervous system is far from destroyed by a solitary cerebral lesion and may be only depressed. This depression is more intimately related to the afferents to the cortex and their eventual association with the desired motor acts rather than the motor function itself. The proper evaluation of the sensory disturbance, if present, may prevent needless waste of time and energy by patient and therapist and avoid unnecessary frustrations of the patient that follow the failure to improve. A careful examination of the patient in terms of mass motion synergies is the only way to observe motor function in a severely afflicted hemiplegic patient. This may prove to be true also in patients with other upper motor neuron lesions. The standard muscle test may serve to supplement our information regarding strength only when the patient's motion is relatively isolated from the basic synergies. Its indiscriminate prescription is an unnecessary cost to the patient.

The described testing device is a useful tool in gaining knowledge of the therapeutic effectiveness of facilitative procedures. It may serve to stimulate objective analyses of similar problems. *Only* after sufficient time and energy are devoted to this area will we be able to say scientifically that neuromuscular facilitation is the desired physical therapeutic procedure in all cases of upper motor neuron disease.

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The test "Hemiplegia—Classification and Progress Record," as illustrated on p. 168, is that which appeared originally in the preliminary report of Dr. Reynolds and his associates[8] and is reprinted here with the permission of the Archives of Physical Medicine and Rehabilitation.—Editor

Review of the Month

Long-Term Illness; Management of the Chronically Ill Patient

Edited by Michael G. Wohl, M. D.
With the collaboration of
79 contributing authorities

Published by W. B. Saunders Co., W. Washington Sq., Philadelphia 5, Pa. 1959. 748 p. illus., tabs. $17.00.

Reviewed by James Raglan Miller, M.D.

About the Editor . . .

Dr. Wohl is Chief of the Nutrition Clinic, Philadelphia General Hospital; Consultant Physician in Medicine, Albert Einstein Medical Center, Southern Division; and attending Physician, Home for the Jewish Aged, Philadelphia. Formerly he was Clinical Professor of Medicine (Endrocrinology) at the Philadelphia General Hospital and Temple University School of Medicine.

About the Reviewer . . .

Dr. Miller, a member of the Commission on Chronic Illness and chairman of the Interim Commission, was also a member of the editorial committee for Vol. II, Chronic Illness in the United States, "Care of the Long-Term Patient." Since 1947, he has been vice-chairman of the Connecticut State Commission on Tuberculosis and Other Chronic Illness and its predecessor, the Commission on the Care and Treatment of the Chronically Ill, Aged and Infirm. From 1945 to 1950 he was a member of the Board of Trustees of the American Medical Association.

An editorial in the *Saturday Review* for Jan. 17, 1959, by C. C. Brown, Dean of Columbia's Graduate School of Business, said, "The more we know, the more we realize what we do not know. That is the fascination of the quest for knowledge. But it is quite impossible for the most avid scholar to keep abreast of more than a fraction of the accretions. He feels impelled to focus on progressively smaller segments of total knowledge. This seems to be true of all the established academic disciplines including non-professional as well as the professional fields of medicine, engineering, law and business."

To answer such difficulties, the encyclopedic-type reference book that is under discussion brings aid and comfort to the physician. Unfortunately, this book weighs four pounds and in other respects also is not light reading. Its 79 authors, however, show evidence of having taught their subjects. The book is well printed, two columns to the page, and a scheduled format leads the reader quickly to that for which he is looking. Like textbooks of pathology, the subject matter is divided into its general and its special aspects. The first 90 pages serve to familiarize the reader with those features of chronic illness that are common to the long-term management of every patient. The stated aim of the book, to present a comprehensive survey of such management, is well carried out. The second part of the volume considers therapy of specific diseases and their management where no specific therapy is known. This is an important distinction, particularly in view of our incomplete knowledge. Osler used to tell his students that the best medicine for a patient who has inoperable cancer of the stomach is an optimistic physician.

This volume is designed for the medical student, for the rehabilitation worker, and particularly for the practitioner, generalist or specialist, who

maintains an interest in the total care of his patient and wishes to keep up with the latest advances. For, although this is essentially a book on therapeutics, most chapters start with a succinct review of the fundamental pathophysiology so that even the casual reader cannot fail to assimilate some of the accumulated scientific wisdom.

The book leans heavily on the solid accomplishments of the Commission on Chronic Illness. It sets forth the general principles observed in home and hospital care, in rehabilitation, in multiphasic screening, and in nursing procedures. Perhaps the best chapter of all deals with the psychologic problems of the chronically ill, in which Francis M. Forster pays tribute to the keen insight of most practitioners of medicine in regard to psychologic problems associated with their patient's chronic illness, of the patient in his total environment, and of his personality structure. He makes a good case for the willingness of the physician, without charlatanry, "to serve as Al Hakim, the philosopher, the wise one."

Among the general principles the reviewer would like to see more emphasized is the old admonition *"nole ni nocere."* Iatrogenic conditions are well enough known in this day of polypharmacy to merit emphasis; *e.g.,* the forced feeding of milk and Vitamin D to patients immobilized and lacking muscular activity may lead to a formation of renal stones. The experience of the U. S. Armed Forces in this regard should not be lost. Continued emphasis on team work may impress the practitioner. He may accept it in principle, but does he call in the physiatrist, for example, before he amputates a leg? It is tragic for him to be told, "I wish you had let me in on this situation earlier," or even worse if he is told, "I am sorry but you will have to amputate again at a higher level if I am to fit a useful prosthesis."

All textbooks notoriously suffer from prenatal obsolescence, and it is certain that this reference book will need revision within 5 to 10 years. It is noted that the directory of rehabilitation centers, dated September, 1958, found in the appendix, though helpful in locating the nearest rehabilitation center in a given community, does not mention such well-established centers as the Lemuel Shattuck Hospital in Boston, Woodruff Hospital and the New Haven Rehabilitation Center in New Haven, and the Rancho Los Amigos in Hondo, California, the respiratory center for the southwest.

One notes a useful subdivision in the large areas such as cardiovascular and gastrointestinal diseases and those of the nervous system. There is a good grouping of the literature references, which appear to be well selected. The discussions in the various chapters on special diseases are up to date and free from undue emphasis on particular programs of management where schools of thought differ. Many times the finger is pointed at an unknown area that further research may enlighten.

As a student at Johns Hopkins some 50 years ago, when that institution was reputed to be a hotbed of therapeutic nihilism, the reviewer and his classmates often glanced toward Philadelphia where people apparently knew just what to do for almost everything. It is naturally satisfying to have this reference book of therapeutics so largely sprinkled with Philadelphian wisdom, though the reader is brought in contact also with the best thought of medical centers in Boston, New York, Baltimore, and California and is delighted to learn what is going on at Georgia Warm Springs and thought in the Menninger Clinic.

The chapter on allergic diseases, which have been a severe plague to the practitioner as well as the patient, is characteristic of the useful suggestions on management, where specific therapy is not at hand. One would expect to find the word "migraine" in the index. Perhaps this is in a class with the terms "rheumatism" and "erythema multiforme." So much is new in the treatment of diseases of the pulmonary and of the digestive systems that these chapters serve as a refresher course. Likewise, changing concepts in the nature of cancer are crowding in on us. In spite of the appearance of metastases, opportunities must not be lost to use new remedies. It has been said that chronic cancer is more often uncared for than wrongly treated.

The practitioner will find great help in reading the chapters on diseases of the endocrine glands, including diabetes, in which are many useful tables. Therapy of diseases of the blood-forming organs, a particularly difficult group to handle, will be found very helpful, especially the listing of drugs that cause purpura, hemolytic anemia, thrombocytopenia, leukopenia (agranulocytosis), pancytopenia, and aplastic anemia.

Fifty years ago every medical student had a chance to observe secondary amyloidosis of the liver and kidneys at the autopsy table. These lesions have vanished almost as completely as typhoid fever. Undoubtedly this constitutes a victory for modern medicine; perhaps it merits mention. It might be too much to expect a comment on such therapeutic modalities as supersonic sound, vibrating machines, and even on the ever-present cults of osteopathy, chiropractic, faith healers, etc. No physician who treats chronic illness can escape this challenge from time to time and he thirsts for wise counsel in developing an attitude toward these "cures" that will be honest and that will maintain the respect of his patient.

The general flavor of this volume is described in the following, quoted in a section on acute and latent phases of glomerulonephritis, "If Diagnosis demands judgement and Prognosis experience, Treatment requires chiefly patience and resource. From the point of view of the sufferer it is also the most important part of the medical art, for it is to the treatment of the case that everything else leads up."

This is a good, useful volume.

Other Books Reviewed

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The Challenge of Cerebral Palsy; A Short Study of Its Implications for Teachers and Parents

By: **Paulette A. Leaning**

1958. 98 p. illus. Miss Paulette A. Leaning, "Bancourt," 171 Hurstmere Road, Takapuna, Auckland, N.2, New Zealand. Price: 9/- retail. Available in the U.S. from the International Society for the Welfare of Cripples, 701 First Ave., New York 17, N.Y., at $1.50.

Certified as a teacher in New Zealand, the author, cerebral palsied since birth, taught cerebral palsied children for three years before making a round-the-world tour to study educational technics. Her book was planned to aid teachers and parents in gaining an understanding of the problems of the cerebral palsied child. Close integration of all phases of the treatment and educational program is vital; unless teachers understand this necessity, they will not be able to achieve the best results. She discusses, in turn, the psychological evaluation, play, motivation, and discipline, the teaching of basic subjects, various therapies employed in treatment, vocational guidance and training, and parent guidance. It is her belief that completely individual teaching is just as necessary in the education of the cerebral palsied as in therapy.

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Introduction to Exceptional Children

By: **Harry J. Baker**

1959. 523 p. illus., tabs. Macmillan Co., 60 Fifth Ave., New York 11, N.Y. $6.50.

The third edition of this well-known text stresses the "team" approach to problems of the exceptional child, reflecting the co-ordinated attack of the medical specialist, the psychologist, social worker, the nurse, the teacher, and parents on various aspects of care, education, and management of the handicapped and exceptional. Specific mental and physical handicaps, deviations in behavior, abilities, aptitudes, and differences in educational achievement are discussed. It has been the author's objective to help school personnel understand the nature and causes of conditions that handicap or facilitate learning and to show how school programs can be adapted to meet the needs of all exceptional children. Additional aids for the student are the questions for discussion, lists of organizations concerned with exceptional children, bibliographies of books and audiovisual aids that follow each chapter. The final chapter summarizes family and social problems that call for unusual adjustments for children; community responsibility in this area is defined.

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More About the Backward Child

By: **Herta Loewy**

1959. 138 p. illus. Philosophical Library, Inc., 15 E. 40th St., New York 16, N.Y. $4.75.

The third of Miss Loewy's books written to aid teachers and parents of retarded children, it brings up to date various case histories described in the earlier books (see *Rehab. Lit.*, Apr., 1952, #350, and June, 1956, #761) and describes further extensions of her methods of teaching reading, writing, arithmetic, music, rhythm, and speech. More coverage is given in the current book to psychological problems, the question of home care versus institutionalization, problems of the adolescent mentally retarded, and what the author terms "mental delinquency." Miss Loewy conducts a small school in England for retarded children.

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Music Therapy, 1957; Seventh Book of Proceedings of the National Association for Music Therapy; Papers from the Eighth Annual Conference

Edited by: **E. Thayer Gaston**

1958. 264 p. tabs., diag. (Vol. 7) Allen Press, Lawrence, Kansas. $5.20.

These proceedings of the annual conference of the Association contain sections on the dynamics of music therapy; music therapy in the psychiatric hospital and for exceptional children; music therapy as related to music education and special education; dance therapy; and research in music therapy. Part III, "Music therapy for exceptional children," includes: Music as a tool in psychotherapy for children, Esther Goetz Gilliland, Mildred Dickinson, and Georgia M. Greven (3 articles).—Reaching the brain damaged child through music, Louise Whitbeck Fraser.—Music as a therapeutic experience for the emotionally disturbed child, Dorothy Brin Crocker.—Response of a boy to music in a hospital and training center, Martha A. Loven.

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Proceedings of the 1957 Institute-Conference, Cleveland, October 21-25, held in conjunction with the Annual Conference of the American Occupational Therapy Association

By: **American Occupational Therapy Association**

1959. 101 p. American Occupational Therapy Assn., 250 W. 57th St., New York 19, N.Y. 75¢.

Contents: The occupational therapist works with groups, Jack R. Gibb.—The therapeutic use of the self, Jerome D. Frank.—Evaluating the patient in occupational therapy (panel discussion), Karl Ireland, Chairman.—Synthesis: 1957 AOTA Institute-Conference, Wilma L. West.—Recommendations.—Powerful levers—in little common things (Eleanor Clarke Slagle Lectureship, 1957), Ruth W. Brunyate.

Also includes summary discussions, descriptions of demonstrations at the "Techniques Fair," and resource material used as a supplementary guide in discussions on evaluating patients in six disability areas (tuberculosis, psychiatry, physical disability, geriatrics, pediatrics, and general medicine and surgery).

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Proceedings of the Workshop on Dentistry for the Handicapped (University of Pennsylvania, September 8-10, 1958)

Edited by: **Manuel M. Album**, D.D.S.

1958. 121 p. illus. Published by University of Pennsylvania School of Dentistry. Also available from National Society for Crippled Children and Adults, 2023 W. Ogden Ave., Chicago 12, Ill. $5.00. Paperbound.

A report of the first workshop of its kind devoted to the dental problems of the handicapped; papers and lectures, together with a summary of the seminar discussions, are presented. All pertained to aspects of treatment, management, and the oral manifestations of cerebral palsy and mental retardation. All those interested in adequate dental care for handicapped children, especially for the severely affected, will find this book of value since literature in this field is often not readily available.

Contents: External and oral manifestations in cerebral palsy, Manuel M. Album.—Neonatal and prenatal enamel hypoplasia in children with cerebral palsy, Maury Massler and Meyer A. Perlstein.—Clinical observations in the treatment of mentally retarded children, Irving W. Eichenbaum.—Peridontal disturbances in mental retardation, M. Michael Cohen.—The medical perspective of mental and neurological disabilities in children, Charles Kennedy.—The management of general anesthesia for dentistry of the handicapped child, Leonard Bachman.—The preoperative medication of patients for dental surgery, Alfred Freeman.—Premedication for office dental procedures, Manuel M. Album.—The role of the social service agency in the handicapped problem, Creston Herold.—Questions and seminar reports.—Summation of seminars, Manuel M. Album.

Publication of the book was made possible by a grant-in-aid from the U.S. Office of Vocational Rehabilitation, the National Society for Crippled Children and Adults, and the Philadelphia Society for Crippled Children and Adults.

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Progressive Exercise Therapy in Rehabilitation and Physical Education

By: **John H. C. Colson**

1958. 184 p. illus. Published by John Wright & Sons, Bristol, England, and distributed in the United States by the Williams & Wilkins Co., Baltimore 2, Md. $4.50.

Part I contains illustrated descriptions of free exercises, graded and progressed in strength or mobility and classified in relation to individual muscle groups. Part II discusses the use of progressive exercise therapy in the treatment of specific surgical and orthopedic conditions; introductory notes in each chapter describe conditions for which the exercises are suitable and details of the surgical procedures used. Lists of exercises and a timetable for their application are included. Part III outlines the current approach to general exercise therapy used to supplement treatment by specific exercises. Discussed are "warming-up" mobility exercises done to the accompaniment of music and circuit training, a comparatively new form of physical education aimed at the progressive development of strength and endurance. A glossary of exercise terminology used in the book is given.

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Psychological Problems in Mental Deficiency

By: **Seymour B. Sarason** (Part Two by Seymour B. Sarason and Thomas Gladwin)

1959. 678 p. illus., tabs. 3d ed. Harper & Bros., Publishers, 49 E. 33rd St., New York 16, N.Y. $6.50.

A standard text on psychological theory and practice in the field of mental deficiency since 1949, the third edition contains, in Part One, essentially the entire contents of the second edition. The addition of Part Two, "Psychological and cultural problems in mental subnormality; a review of research," makes the third edition the most definitive treatment of the subject to date. (For annotation of Part Two, which appeared in the *Am. J. Mental Deficiency*, May, 1958, and was issued as a *Genetic Psychology Monograph* in Feb., 1958, see *Rehab. Lit.*, Aug., 1958, #948.) Although similar in approach to the book, the monograph covers such topics as psychosis and subnormality, the nature of intelligence and its measurement, heredity and environment, ethnicality, social class, and bilingualism from the anthropological point of view. The final chapter of the monograph section offers recommendations for further research that might provide both practical and theoretical information useful in the field of subnormal functioning.

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Re-education of the Injured Shoulder

By: **R. Barrie Brookes**

1959. 114 p. figs. Published by E. & S. Livingstone, Ltd., Edinburgh, and distributed in the United States by Williams & Wilkins Co., Baltimore 2, Md. $3.50.

Conservative methods of treating the injured shoulder have, within the last few years, been encouraging. Since most of the literature in the field is written from the surgeon's point of view, the author believed that a book describing specific details of conservative treatment for the aid of the physical therapist would fill a need. Emphasis in this monograph is mainly on those injuries involving the subacromial tissues of persons in the middle-age group. Glenohumeral dislocations and fractures involving the surgical neck and greater tuberosity of the humerus are considered because of their effect on surrounding soft structures and functional results. A brief review of the literature shows differing views on rotator cuff pathology and various attitudes toward treatment. The applied anatomy of the essential structures is described, normal function analyzed, and the significance of abnormal function related to diagnosis. Active and passive therapy is evaluated and the rationale of exercise explained. The main portion of the book is devoted to a discussion of specific injuries and their treatment by technics of physical medicine. End-results in 352 patients on discharge from physical therapy treatment are tabulated. The appendix includes a table of comparative signs and symptoms of the common shoulder lesions from which a differential diagnosis can be made, as well as a sample of the instructions for exercises to be given patients.

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Those Later Years

By: **Frances Avery Faunce**

1959. 177 p. Thomas Y. Crowell Co., 432 Fourth Ave., New York 16, N. Y. $3.50.

Five former schoolmates, now facing the problems of old age and the possible loss of independence, meet again after many years. Two are already living in a rest home; the three still living independently recognize that they too will eventually become dependent. Their inner doubts and feelings of insecurity are vividly revealed through their conversational give-and-take as they mentally resolve their mutual and individual problems. The story is told in such a manner that the very real personal concern of the older person over the remaining years of her life is brought home forcefully.

The Care and Guidance of the Child with a Handicap

(Continued from page 162)

"susceptible" or "vulnerable" and make a special point of following him and seeing him periodically.

12. I know that "case finding" is more than finding a new case: after that looking for gaps in the child's total rehabilitation—physical, mental, emotional, social, educational, and vocational—this also is "finding the case" in need of care.
13. I am willing and able to work as a member of a professional team, respecting the contributions and opinions of the other disciplines and subordinating my role to the decision of the group.
14. I can flexibly assume varying degrees of responsibility for different children to fit each situation best—sometimes limiting my role to general health supervision and care of intercurrent illness, sometimes sharing with the consultants in the special care of the handicap.
15. Although I do not have technical supervision over physical therapy and certain other special treatments, I include them in my over-all assessment of the child's needs and progress.
16. I realize how easily the presence of a chronic handicapping condition in a child can throw the family into medical indigency.
17. I am acquainted with the programs of community agencies, and I cooperate with them in the care of my handicapped patients.
18. I recognize the importance of continuity of care over a span of years. If I lose contact with the family, I call for help to get the child back under medical supervision.
19. I encourage the child to participate in normal social groups, and I work for increasing his acceptance by these groups and by the community in general.
20. I participate in decisions, plans, and arrangements for the education of the child.
21. To nonmedical professional persons I interpret medical information they should have about a handicapped child.
22. I participate in advising about plans and arrangements for the child's future vocation.
23. I advise and support the family in the difficult decisions they may have to make on institutional placement for their child.
24. I help to advise parents' groups and other organizations of citizens about how they can improve services to handicapped children.
25. I strive for the improvement of my community's resources for the care of handicapped children.

Journal articles, chapters of books, research reports, and other current publications have been selected for digest in this section because of their significance and possible interest to readers in the various professional disciplines. Authors' and publishers' addresses are given when available for the convenience of the reader should he desire to obtain the complete article or publication. The editor will be most receptive to suggestions as to new publications warranting this special attention in Digests of the Month.

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Survivorship in Cerebral Palsy

By: **Edward R. Schlesinger**, M.D., M.P.H., F.A.P.H.A.; **Norman C. Allaway**, M.Sc.; and **Seymour Peltin**

In: *Am. J. Public Health.* Mar., 1959. 49:3:343-349.

Increased knowledge of the life expectancy in cerebral palsy is desirable in itself and has practical value in planning community services for the cerebral palsied. Surveys have revealed much lower prevalence rates in cerebral palsy with increasing age after adolescence. Mapping the extent of excess mortality in cerebral palsy would help settle whether there is a normal life expectancy for cerebral palsied children at five years of age. The relative importance of earlier death and of the greater difficulty in case finding would be established and the lower prevalence rates found with advancing age explained. Survivorship, especially when it can be related to the involvement and its degree, is an index for evaluation of results of treatment.

This study is designed to provide more definitive information than is available on life expectancy among children and young adults with cerebral palsy. Mortality was not analyzed by type of involvement, since a single involvement was seldom reported. Spasticity was most often reported combined with athetosis, ataxia, or rigidity. The study group and data were supplied by the system of mandatory reporting of cases of cerebral palsy to the New York Department of Health in effect in upstate New York (New York State exclusive of New York City) between Jan. 1, 1950, and Dec. 31, 1952, and through follow-up. The name, address, sex, date of birth, source of report, severity of physical limitations, and nature of conditions were recorded for 3,108 persons born before Jan. 1, 1950. Evaluating the representativeness of the reported cases in relation to the total population with cerebral palsy is difficult. Of the cases, 96 percent had been reported by staff physicians and only 4 percent from private practice. No criteria were established to guide the reporting physician in determining the degree of severity of physical involvement; one who saw only those very severely involved might report as mildly involved persons whom others would describe as severely involved.

Patients were followed for seven and one-half years; final data on survivorship status were gathered as of June 30, 1957. Information was obtained from the Bureau of Medical Rehabilitation, State Department of Health; the State Department of Mental Hygiene; county and full-time city health departments and district state health offices; the State Department of Education; the Office of Vital Records, State Department of Health; and from persons who had left the upstate area (through mail follow-ups).

In five cases deaths were established by reports from institutions. Unless a death certificate was found, all persons studied were assumed to be living as of June 30, 1957, even if complete follow-up data were lacking. Dates of all substantiated deaths were ascertained. For all those surviving of the group of 3,108, the years of survivorship were calculated. The number of deaths per 1,000 person-years was computed for each sex-age group. Life tables for New York State (1949-1951) were used to compute deaths expected for similar groups in the general population in the seven and one-half years covered. The ratio of observed to expected deaths was used as an index of relative mortality. Severity of physical limitations and institutional status at time of original report were computed. All deaths were grouped by age at time of death and age-sex-specific death rates were determined. The group of individuals reaching an age during the period of follow-up was used as the base for this.

Of 205 deaths among the 3,108 persons studied, 119 were among the 1,708 males and 86 among the 1,400 females. The over-all death rate per 1,000 person-years was 9.6 for males and 8.5 for females. Death rates must be considered as minimal since only substantiated death reports were included. The experience of each sex group was presented separately because of variations in the age distribution of males and females. Among males of the study group, the mortality was about 13 times that expected in a population of similar age distribution. The death rate was lower among the females but was 17 times that expected in such a group, showing an even greater excess of mortality than shown by males. Age-specific death rates among males and females aged 6 to 17 years showed no consistent trend in the age-specific death rates, but a tendency among the males toward higher death rates at younger ages was not seen among the females. This inconsistency was perhaps due to the small numbers involved.

Extent of disability was reported for 2,586 persons. With increasing severity of physical limitations reported, both the observed death rate and the ratio of observed to expected deaths in each sex group consistently rose sharply. The mortality rate of those with severe physical involvement was 27 to 30 times that expected in the corresponding age-sex groups of the general population. In contrast, the mortality rate of those with mild physical involvement was four to five times the expected. Of the group first reported from state institutions for the mentally retarded (15% of the total), the mortality rate was about 30 times that for a group of the same age in the general population. Persons originally reported from other sources showed an excess mortality of only 9 to 14 times that of the general population. This decided difference was probably due to the high numbers of severely involved persons in the institutionalized group. Also, all those in institutions were moderately to severely mentally retarded, suggesting extensive cerebral damage.

(Article includes six tables giving data on mortality and age-specific mortality of males and of females, mortality by severity of physical limitations by sex, and mortality by source of report by sex.)

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A Comment on

Survivorship in Cerebral Palsy

The study of Dr. Schlesinger and his associates offers the first scientific evidence we have that the mortality rate for persons with cerebral palsy is substantially higher than that of the general population, although other authorities have expressed similar impressions. Dr. Schlesinger finds that, for cerebral palsied persons aged 6 to 17 years, the mortality rate for males is 13 times the normal and for females 17 times the rate for persons in the general population. If these higher death rates also apply to persons over age 17, estimates can be made on survivorship of a theoretical group of cerebral palsied persons. Abridged Life Tables of the United States published by the National Office of Vital Statistics was the source for estimates on the survivorship of the normal population.

Starting with a group of 1,000 males and 1,000 females who had cerebral palsy at age 5, this table compares the number surviving at specific ages with that in the general population.

Age	Males		Females	
	General Population	Cerebral Palsied	General Population	Cerebral Palsied
5	1,000	1,000	1,000	1,000
20	988	874	994	898
30	972	666	987	779
40	952	406	975	575
45	933	159	964	388

It should be pointed out that estimates of this type have a wide margin of error, and, valuable as this pioneering study is, additional research is needed before final conclusions can be reached. Nevertheless, the data reported appear to be conservative, and, if there is error, it probably is in the direction of underestimating the mortality rate of persons with cerebral palsy. Dr. Schlesinger has noted that the mortality rate is greatest among those more severely affected. Services to the cerebral palsied are in most cases offered to those with severe involvement; in planning it can probably be assumed that the death rate of those receiving primary attention will be even greater than the average figures of 13 times the normal death rate for males and 17 times the normal for females.

This new and specific information on survivorship among the cerebral palsied is of particular value to organizations and professional persons concerned with planning services and facilities for this group. It indicates a need for constant review of the programs of rehabilitation and custodial facilities as to anticipated caseloads, particularly in relation to cerebral palsied adults.

In a study conducted in 1955 by the National Society for Crippled Children and Adults on life insurance for the cerebral palsied, insurance companies pointed to the need of better longevity data about the cerebral palsied before consideration of insuring this group at other than higher extra rates. The data are now at hand, but unfortunately the cerebral palsied adult who needs life insurance protection will probably find insurance companies even more reluctant to accept him as a client.—*Michael M. Dolnick, Senior Research Analyst, National Society for Crippled Children and Adults.*

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Roots of Prejudice Against the Handicapped

By: **William Gellman, Ph.D.** *(Jewish Vocational Service, 1 S. Franklin St., Chicago 6, Ill.)*

In: *J. Rehab.* Jan.-Feb., 1959. 25:1:4-6, 25.

Social, educational, and vocational discriminations express the prejudice toward and rejection of the handicapped that today hamper disabled persons. This prejudice is rooted in social customs and norms, in child-rearing practices stressing normalcy and health, in neurotic fears that re-emerge in frustrating or anxiety-provoking situations, and in the disabled's own behavior which invites prejudice. Various historical attitudes are a part of the present approach to handicap: the Greek belief in the inferiority of the physically imperfect; the preprophetic Hebraic idea of punishment of the sick by God; the early Christian faith that illness contributed to moral virtue; the Calvinistic assumption that lack of material success signified lack of grace; the Darwinian theory of the survival of the fittest; and the pre-World War I faith in the progress of mankind through science. Today youth, wholeness, and bodily perfection are stressed and an obvious handicap is regarded as a bar to productive living. At the same time, the handicapped are pitied and help is extended them through public and voluntary agencies.

Attitudes are reflected in the family by example, custom, and institutionalized values. Child-rearing practices shape the adult behavior toward the handicapped. As a group parents fear a child's becoming disabled. A mother feels instant relief at learning a new-born child is physically whole, while a sense of guilt is evoked by presence of a handicap. Parents are hesitant to allow the handicapped child to associate with those who are not. Unconscious beliefs that disability is contagious increase the social isolation of the handicapped child. Social emphasis on conformity and the peer group mentality creates avoidance. Disabled children, who do not conform to the middle-class socially acceptable stereotypes of appearance and behavior, are subject to rejection and disparagement.

A handicapped child is conditioned by a prejudicial climate to accept his social role and, reflecting the attitude of those about him, prepares himself to become an object of prejudice. He becomes fearful, insecure, and anxious. Educational segregation maintains the pattern of isolation set for him. Vital social experience is withheld and significant differences in perception and behavior appear. Adolescent dating is difficult. Companionship is sought with other disabled persons. Self-perpetuating subcultures are composed of such persons. This social role carries with it a sense of devaluation or inferiority. Though preferential treatment and aid are expected, disabled persons are alert for slights. They are perceived as relatively low-status, nonproducing persons unable to protect themselves from insults. In the nonhandicapped, rejection and fear of the disability are coupled with pity.

Discriminatory actions may be classified as: acquiescence to group standards; displaced reactions to frustration; amelioration of personal fears and insecurities. The conformist needs to accede to the mores of his group. Its standards determine his. The tolerant leave a discriminatory group. The frustrated act as though the disabled were the cause of problems and relieve anxieties by discrimination. The neurotic personality reacts to childhood insecurities by showing prejudice; he uses it to feel superior and personally secure. Other factors become important at deeper personality levels—feelings of guilt over unpunished misdeeds; fear of contamination by association with the unfit or those excluded by the elect; and rejection of abnormality, a challenge to accepted methods of achieving through conformity.

It is undeniable that discrimination against the handicapped is a deterrent to successful rehabilitation. The patient is viewed in the social role of a person to be shaped or educated into health. A teacher-pupil relationship in paramedical therapies reinforces the staff's conviction of superiority. Rehabilitation personnel with neurotic tendencies or situational frustration become omnipotent therapists, dispensing health and succor to the helpless. The social distance is made wider by the setting of middle-class goals of appearance and achievement for patients. Since most rehabilitation patients come from the lower-level economic groups, patient behavior is far from staff expectations. With patient failure in spite of continued staff efforts, psychological rejection begins.

To eliminate discriminatory attitudes the roots of prejudice and rejection must be attacked—the social climate, the child-rearing process, the social role assigned the disabled, and the behavior of individuals who use discrimination to meet personal or social needs. The varied aspects of the problem call for many approaches. In a continuing educational program emphasis should be on: acceptance of disability as natural and involving changes in customary living patterns (efforts to prevent and ameliorate disability should continue); recognition that the handicapped can function as school, work, and recreational companions of the nonhandicapped; the use of positive job specifications emphasizing abilities and the avoidance of negative job specifications leading to rejection; and recognition that each can contribute socially regardless of the type and severity of disability. Awareness that disability can happen without parental fault will permit parents to accept disabled children and allow the nonhandicapped to associate freely with the handicapped. A positive social climate can do much to eliminate restrictions placed on the disabled and alleviate the problems of discrimination. If those of us in rehabilitation would add, to knowledge and skill, sensitive under-

standing of man's common humanity, our professional attitudes would reflect empathy rather than sympathy, respect rather than tolerance, and acceptance rather than pity.

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The Brain-Injured Child: What Can We Do for Him?

By: **Laura E. Lehtinen, M.A.** *(The Cove Schools, Racine, Wis.)*

In: *Dallas Med. J.* Spec. ed. Mar., 1959. p. 15-21.

The brain-injured child has impaired activity in certain areas and his ability to acquire new skills is interfered with. He needs special education and time to master complicated processes, time to develop new technics that may be his alone, and time to perfect these technics so they function with little conscious effort on his part. Education should start with recognition of need. A brain-injured child usually has more than one disorder: a child with mild mental retardation may have seizures or learning difficulties beyond his retardation; a cerebral palsied child also may have learning defects and seizures. Each case is different in disorders present and in degree of difficulty.

Our subject is brain-injured children with normal or nearly normal intelligence who have learning disabilities, language and perceptual disturbances, and behavior disorders. A child's age is of primary importance in planning treatment. An approach that is effective for a 5- or 6-year-old is inappropriate for a 10- or 11-year-old. Chronological age may be an index to a brain-injured child's level in certain fields—areas that have little or no damage and develop along the expected genetic pattern. The preschool child's main activity is social and perceptual; he learns of the space and forms of his world. We often recommend placing a brain-injured child with relatively good intelligence and no serious behavior disturbance in a normal nursery school program and giving no specific treatment. In this way he learns social behavior patterns suited to his age and first begins organizing his space world. But when this same child is six or seven years old, placement in a class with normal children may be unfortunate. Social success is no guarantee of academic success. The child's goals now are focused on progress in school. He is eager to learn the symbols representing his external world. Mastery depends on a reasonably intact system for receiving and organizing impressions through all sensory channels and relating them. The child needs system and intensive instruction suited to his particular needs. Recommending education with normal children without his deficits implies that the child's problems lie in maturation. If the child discovers his disabilities and receives no help in overcoming them, reactive or emotional difficulties commonly are added to existing organic problems. Chronological age does affect choice of teaching materials. The 7-year-old delights in puzzle or block designs; the perceptual confusions of the 11-year-old are best attacked with other materials.

The brain-injured child's developmental level is usually determined by psychological testing. The IQ or mental age test can give information on status at a given time and movement through time. However, in testing a brain-injured child, his performance may be difficult to set down in one numerical term. To describe his mental ability is like trying to describe the physical ability of a child with cerebral palsy. It is more accurate and informative to state the level of function of the various component parts of the system. When there is brain injury the language and conceptual abilities may be relatively unimpaired and visual-perceptual abilities severely damaged. If development is discrepant, two measures of IQ are meaningful—one for verbal-conceptual abilities and one for the visual-perceptual—or the mental ages obtained on various subtests may be stated. From these measurements our rehabilitative efforts may be given direction.

Important in an examination of the child's deficits, depicting qualitatively damaged areas, are the child's visual perception, his auditory perception, his conceptual abilities, and his behavior. Visual perception is reflected in the child's school and play performance. How well can he discriminate forms, organize the space of a page, hold a figure against a disturbing background, see relationships among several elements presented at one time, analyze a figure into its parts and recombine them, and handle without confusion the co-ordinates of up-down, right and left? Auditory perceptual organization includes discrimination of similar sounds, combining and blending of syllables or separation of sounds into words, detection of similarities in sounds of words, and analyzing a word sound into separate parts. Difficulties are usually reflected in a child's speech and almost certainly cause trouble in reading. In conceptual abilities, we want to know if he can abstract similarities in the presence of differences, if he can determine the causality and answer "why," if he can recognize absurdities and grasp analogies. The knowledge helps us to predict in general the result of treatment. Many brain-injured children have excellent vocabularies and use correct grammatical sentence structure. Others, with aphasic symptomatology, show paragrammatism (a tendency to omit certain parts of speech or to simplify), making a single tense or pronoun function doubly. Many other problems occur in language development. Learning depends greatly on the ability to associate percepts from different perceptual systems—such

as that involved in naming objects newly perceived, letters in the alphabet, or numerical symbols or in associating the sound and the appearance of letters. In some brain-injured children such associations are difficult; memory seems defective for material more directly perceptual in nature than events and experiences.

In behavior the brain-injured child is typically hyperactive, restless, and impulsive, seemingly lacking in inhibitory controls that enable a normal child to foresee results and to hold up action until he has all the data he needs. The brain-injured do not see themselves as part of a larger whole. Mentally they cannot screen out from awareness the irrelevant. They appear distractible or unselective and are attentive to all sorts of things, noting and commenting inappropriately on details. Many are perseverative and inflexible, clinging tenaciously to a percept once it is structured. Emotional problems aggravate the organic behavior disorder, increasing the hyperactivity, restlessness, or rigidity already present.

In treating the child in the area of his behavior, one could begin by trying to change him either through use of drugs or psychiatrically. Both approaches are valid in certain cases. Changing the environment has been most successful for us. Young brain-injured children are happiest and best managed when they follow a routine without too many disturbing interruptions. In school the routine is clear-cut (not rigid) and distractions are kept minimal. The younger and most distractible have their desks facing the wall. Sometimes we have seated a child in a nook or behind a screen, explaining that this will help him work better. These measures are temporary and not applied routinely. Often an interpretation of the pattern of a procedure or social situation has completely dissipated a problem.

As the child matures neurologically and grows in experience, environmental perception will improve. With the complexity of his surroundings reduced, the child is shielded from the destructive effects of confusion and error and from discouragement, insecurity, and anxiety. Through having experienced an orderly, consistent environment, the child learns to organize for himself.

Lessons should be reduced to essentials. The child is given only a page, not a workbook; he is taught single letters, not a word. The level is one in which he can succeed.

The child with perceptual disturbance may have difficulty making "perceptual sense" out of his tasks. He may not know where or how to begin writing his numbers, may lose his place or skip lines in reading. With relief of the perceptual confusion, the child can do his lesson. Structure is added to the stimulus pattern, the perceptual pattern of the lesson is organized so that the child can "see" what we wish him to "see"—the normal pattern. Color may be used, significant items circled heavily, or part of the page covered.

While learning skills directly related to the school subject, the child is stimulated to exercise his disabled functions. He is given various things that require him to organize perceptual patterns of increasing levels of complexity. Lessons take the form of building designs from cubical and various shaped blocks, making pegboard patterns, building puzzles, drawing pictures. Auditory percepts are organized through a program. The child's attention span seems to lengthen as he works with learning materials that can be organized perceptually and completed independently. He can hold the lesson in the foreground of his attention and return to it even after an interruption.

In learning to write, the visual side of the visuomotor process normally takes the lead. If this is disabled, the child can still learn by turning to another function that may be better organized, such as the kinesthetic function. Tracing a letter on a very large scale may help organize the percept. Seeing parts of a letter in different colors may help to organize the visual percept.

Reading skill depends on the integration of visual and auditory perceptual abilities. Stimuli for both must be analyzed and the correspondence seen. In reading, the auditory perceptual ability carries the greater burden. Stimulating the organization of auditory sequences and the perception of sounds should be started in the earliest stages. Visually, single letters and, auditorially, single sounds must be used and then associated. When there is difficulty, cueing or stimulation strengthens percepts. The letters or parts of words may be colored; discriminating listening may be added. The two percepts may be associated by conceptual routes (relating them to words in the child's experience) or by adding to them the kinesthetic percept.

What is the outlook? For the brain-injured child with normal intelligence—full social participation. With ego satisfaction comes ego control. As the child becomes competent in dealing with his environment he grows in confidence and control. With appropriate educational methods he can become a literate, productive adult ready to take his place in the world.

The Dallas Medical Journal is published monthly by the Dallas County Medical Society, 433 Medical Arts Bldg., Dallas, Tex. The March issue is devoted to the proceedings of the Seminar on the Brain Damaged Child at the 1958 Annual Convention of the National Society for Crippled Children and Adults, held in Dallas. Miss Lehtinen's paper is one of several read at the seminar and published here. (See #482, this issue of Rehab. Lit.) This special edition of the Dallas Medical Journal is available from The National Society for Crippled Children and Adults at 25c a copy.

Abstracts of Current Literature

This abstracting section, together with other numbered references indexed in this issue, serves as a supplement to the reference book Rehabilitation Literature 1950-1955, *compiled by Graham and Mullen and published in 1956 by the Blakiston Division of McGraw-Hill Book Company, New York. An author index will be found on the last page of the issue.*

ACCIDENTS

472. Woodward, Joan *(Burns Research Unit, Birmingham Accident Hosp., Birmingham, England)*

Emotional disturbances of burned children. *Brit Med. J.* Apr. 18, 1959. 5128: 1009-1013.

A report of findings of a study investigating the emotional status of 198 children who had received inpatient treatment at Birmingham Accident Hospital for severe burns between 1952 and 1955. All children were under age 15 at the time of admission to the hospital; follow-up was made during 1957-58. Personal interviews with the mothers revealed that 81 percent of the children showed signs of emotional disturbance, in marked contrast to that noted in the patients' 608 siblings (7%) and in a random control group of 50 (14%). Although there is nothing surprising about the symptoms, which are fairly varied, their persistence for so long a time following the accident is significant. The only factor found to be significantly related to disturbance was the lack of parental visiting to children under 5 years old. In most instances, the disturbances appeared to result from a combination of factors operating in the home and in the community. Suggestions are made for improvements in hospital care and for a more relaxed attitude toward parental participation in the child's care in the hospital.

ADOLESCENCE

473. Lowenfeld, Berthold *(3001 Derby St., Berkeley, Calif.)*

The blind adolescent in a seeing world. *Exceptional Children.* Mar., 1959. 25:7:310-315.

Dr. Lowenfeld, Superintendent of the California School for the Blind, offers some observations on possible reasons for differences found between blind and seeing adolescents in their self-concepts, adjustments, attitudes, and interrelationships. Normal adolescent characteristics are discussed as well as four areas of experience where lack of sight creates special problems for the blind adolescent. These factors, in addition to parental-social attitudes, appear to have some influence on the developing personality of the blind adolescent but further research is needed to determine what lasting effect they have on personality.

AMPUTATION—EQUIPMENT

474. Orthopedic Appliance and Limb Manufacturers Association

The older amputee; a symposium presented before the . . . Assembly of the Limb and Brace Profession . . . October 28, 1958. *Orthopedic & Prosthetic Appliance J.* Mar., 1959. 13:1:37-51.

Contents: The management of the amputees of the older age group, Allen S. Russek.—Prosthetic fitting of the older age patient, Fred J. Eschen.—The preprosthetic phase of the comprehensive management of the older amputee, William Tosberg.

Dr. Russek points out that although many aspects of the management of the amputee in general apply to amputees in the older age group, personal factors have a greater impact on the rehabilitation of older patients. The various levels of functional performance must be evaluated; a method for determining level of performance is outlined. Mr. Eschen calls attention to medical-psychological, personal and social, and mechanical-technical aspects of fitting the older amputee with a prosthesis. He also discusses the means by which the amputee can make the most efficient use of his remaining hip musculature in the control of body movements and of the prosthetic knee during the stance phase of the walking cycle. Functional details of socket shape and fit are considered. Mr. Tosberg suggests that the family physician can help older patients in their psychological acceptance of amputation and the need for a prosthesis. A program of preprosthetic management is discussed; data from several studies on the rehabilitation of amputees past 50 years of age are included.

AMPUTATION—EQUIPMENT—RESEARCH

475. New York University. College of Engineering. Research Division. Prosthetic Devices Study

Studies of the upper-extremity amputee: 1. Design and scope, Edward Peizer; 2. The population (1953-55), Norman Berger; 3. The treatment process, Warren P. Springer; 4. Educative implications, Sidney Fishman. *Artificial Limbs.* Spring, 1958. 5:1:4-94.

The Upper-Extremity Field Studies conducted at New York University in the Research Division of the College of Engineering represent the first, and to date the only, attempt in the United States to evaluate on a broad scale the status of upper-extremity prosthetics. This issue of *Artificial Limbs* presents a series of summary articles describing the development of the Artificial Limb Program, evaluation instruments, and technics devised for use in the study of amputees, characteristics of male upper-extremity amputees (1,630 cases) studied during the years 1953-1955, the seven phases of the treatment process, and the educational implications of procedures developed. The Autumn, 1958, issue of *Artificial Limbs* (yet to be published) will include discussions of the research implications of the Field Studies.

Available from Prosthetics Research Board, National Academy of Sciences-National Research Council, 2101 Constitution Ave., Washington 25, D. C.

AMPUTATION—MEDICAL TREATMENT

476. Urist, Marshall R. *(1019 Gayley Ave., Los Angeles 24, Calif.)*

Bone-graft operations to lengthen the humerus in short arm amputation stumps; report of the results in two bilateral above-the-elbow amputees, by Marshall R. Urist and Robert Mazet, Jr. *J. Bone and Joint Surg.* Apr., 1959. 41-A:3:409-416.

Bone-grafting to extend the length of the humerus in an amputation stump is rarely reported in the literature; its use in two patients with bilateral amputation of the upper extremities is discussed here. The surgical operation and process of repair are described; the procedure, considered to be of limited value, is recommended only for unusual stumps having a large muscle mass in which to bury the transplant. One of the patients had a right shoulder disarticulation and the other, a right arm stump that did not tolerate a prosthesis for more than an hour without considerable discomfort. The objective in both cases was to produce useful left arm stumps.

AMPUTATION (CONGENITAL)—EQUIPMENT

477. Hensley, Cline D., Jr. *(3244 E. Douglas St., Wichita, Kan.)*

The use of a bilateral Canadian-type hip-disarticulation prosthesis for congenital absence of both lower extremities; a case report. *J. Bone and Joint Surg.* Apr., 1959. 41-A:3:417-421.

The basic design of a prosthesis devised for a young boy is described with the modifications required because of the presence of bilateral deformity, a congenital absence of both lower extremities. In the nine-month follow-up, the child has attained a degree of independence previously impossible. He has not complained of pain and has had no evidence of skin irritation at the point of contact between the prosthesis and stump. The device required no shoulder harness or other harness above the waist. (For a more complete description of the Canadian-type hip-disarticulation prosthesis, see *Rehab. Lit.,* June, 1958, #587.)

ARTHRITIS—MEDICAL TREATMENT

478. Harnagel, Edward E. *(511 S. Bonnie Brae St., Los Angeles 57, Calif.)*

Long-term use of prednisone and prednisolone in juvenile rheumatoid arthritis; a report of fifteen cases. *A.M.A. J. Diseases of Children.* Apr., 1959. 97:4:426-431.

A report of observations on the long-term continuous administration of prednisone and prednisolone to 15 patients with juvenile rheumatoid arthritis. Treatment periods ranged from 8 to 24 months, averaging 19 months. Ancillary treatment such as physical therapy and use of aspirin was continued during the period of study but no new measures were initiated. Twelve patients (80%) obtained relief from pain and stiffness but only three (20%) had remission of the disease during the treatment period. Six (40%) were unimproved or became worse; four patients showed progressive articular destruction during treatment. Adverse reactions to prednisone and prednisolone were considered minor. It is recommended, however, that adrenal cortical steroids in juvenile rheumatoid arthritis be limited to severe progressive cases. 21 references.

479. Herfort, Robert *(5 Old Mamaroneck Rd., White Plains, N. Y.)*

Relief of arthritic pain and rehabilitation of chronic arthritic patient by extended sympathetic denervation, by Robert Herfort and S. Harold Nickerson. *Arch. Phys. Med. and Rehab.* Apr., 1959. 40:4:133-140.

Describes experiences over a 3½-year period in the use of a surgical technic, extended lumbar sympathectomy, in 29 patients with advanced arthritis and intractable pain in weight-bearing joints. In both rheumatoid arthritis and osteoarthritis, the procedure has provided, consistently and safely, lasting relief from joint pain. With relief from pain, patients have shown dramatic improvement in functional capacity that has been maintained in follow-up periods ranging up to 3½ years after surgery.

BLIND

See 473; 515.

BLIND—SOCIAL SERVICE

480. Gromann, Helen M. *(State Commission for the Blind, 1100 Raymond Blvd., Newark 5, N.J.)*

Home teaching of the blind; a casework service. *Welfare Reporter,* N. J. State Dept. of Institutions and Agencies. Apr., 1959. 10:2:85-87.

Seven home teachers on the staff of the New Jersey State Commission for the Blind teach all of the traditional subjects usually offered visually handicapped adults. Often, though, service to the blind client does not include formal instruction but is integrated with case work technics that take into consideration the physical and emotional factors in the client's environment. Summaries of case material illustrate the value of social work technics in helping blind adults work out the many problems blindness poses.

BRACES

481. Fuldner, Russell V. *(178 Sherman Ave., New Haven 11, Conn.)*

The Newington brace for cerebral palsy, by Russell V. Fuldner and Josef Rosenberger. (8) p.

In: *Clinical Orthopaedics;* ed. by Anthony F. DePalma. Philadelphia, J. B. Lippincott Co., 1958. Vol. 12, p. 151-158.

Also in abstract form in: *Orthopedic and Prosthetic Appliance J.* Mar., 1959. 13:1:79-82.

A description of an adaptable lower-extremity brace developed at the Newington Home and Hospital for Crippled Children, Newington, Conn. The present model has been progressively redesigned to meet the needs of the more severely handicapped. The brace is used for both spasticity and athetosis; sectionally constructed, it is useful as a training aid since sections can be removed as the child improves in voluntary control. Indications for its use and construction details of the brace are described.

BRAIN INJURIES

482. National Society for Crippled Children and Adults

The brain damaged child; (a symposium) presented

at the Annual Convention of the . . . Dallas . . . November 16, 1958. *Dallas Med. J.* Mar., 1959. 21 p. *(Special edition)*

Contents: Why does he happen? Nicholas J. Eastman. —What are his physical needs? Meyer A. Perlstein.— What are his emotional needs? Leslie B. Hohman.— What can we do for him? Laura E. Lehtinen.

Dr. Eastman reviewed current knowledge on the etiology of the brain-damaged child and research being conducted in this field. Dr. Perlstein discussed certain general principles to be followed in the treatment and management of children with neurologic handicaps; ideally treatment that allows the child to develop to the limits of his potential without his being pushed beyond his limits is recommended. Dr. Hohman described behavior disturbances caused by various forms of brain damage in children; therapy recommended includes psychotherapy, environmental manipulation, drugs, and, in special instances, neurosurgery. Miss Lehtinen, an experienced psychologist, who is Clinical Director of The Cove Schools, offered a practical approach to the problems of brain-damaged children with normal or near-normal intelligence. (For a digest of Miss Lehtinen's article see # 471, this issue.)

Available from National Society for Crippled Children and Adults, 2023 W. Ogden Ave., Chicago 12, Ill., at 25¢ a copy.

See also 498; 510.

CEREBRAL PALSY

See 459; 469; 481; 488; 491.

CHRONIC DISEASE

See 513; p. 172.

CHRONIC DISEASE—BIBLIOGRAPHY

483. Littauer, David *(216 S. Kingshighway Blvd., St. Louis 8, Mo.)*

Chronic illness. *Hospitals.* Apr. 16, 1959. 33:8:48-51.

This entire issue of *Hospitals* is devoted to comprehensive summaries and references in 25 specific areas of interest to hospital administrators as covered by the health field literature appearing during 1958. These administrative reviews appear annually in the journal. The section on chronic illness reviews the problem of serving the needs of a growing population of the chronically ill and aged, summarizes current practices of administration in programs of long-term care and rehabilitation, and includes a bibliography of 33 references.

CHRONIC DISEASE—INSTITUTIONS

484. Hospitals and nursing homes organize services for the aged. *Modern Hosp.* Apr., 1959. 92:4:75-96, 120, 122.

Contents: Self-reliance is part of plan for long-term care, Louis Allen Abramson.—Interior designer is the intermediary between the staff, trustees and patients, Emily Malino.—Long-term units put the accent on living. —Rehabilitation program is education for living, Jane Barton.—Rehabilitation center grows to meet the demand. —Good records mean better care for the chronically ill, Eleanor F. Christian.

A special section describing new facilities and special technics used in the care and treatment of the chronically ill and aged. Mr. Abramson, an architect who designed Beth Abraham Home, an institution under voluntary auspices serving infirm and disabled adults from 18 to 95 years of age, describes the layout of the Home and includes floor plans. Miss Malino discusses briefly design and decorating plans used on the interior of Beth Abraham Home. Pictures, plans, and architects' drawings of five institutions for long term patients are presented on p. 82-84. Objectives of the Rehabilitation Education Service project of Illinois Public Aid Commission are discussed by Miss Barton; the program is unique in its multiple sponsorship by federal, state, and private foundations' funds. Features of the new Rehabilitation Center for the Physically Handicapped at Stamford, Conn., are illustrated and discussed briefly. Miss Christian, a medical record librarian, emphasizes the need for and value of accurately kept medical records in the chronic disease facility, especially the nursing home.

CHRONIC DISEASE—PROGRAMS

485. American Medical Association. Council on Medical Service *(535 N. Dearborn St., Chicago 10, Ill.)*

Chronic illness information centers: Central Service for the Chronically Ill of the Institute of Medicine of Chicago; Central Agency for the Chronically Ill of Milwaukee. *J. Am. Med. Assn.* Apr. 11, 1959. 169:15:1763-1770.

Chronic illness information centers have been established in Chicago, San Francisco, Milwaukee, Cleveland, and Essex County, N.J., to provide information and referral services to physicians and patients seeking the proper facility, to conduct surveys on needs and resources for care, to stimulate and co-ordinate planning, and, generally, to serve as a community clearing house on chronic illness planning and activity. Two such centers are described in this issue of the *Journal;* subsequent issues will carry reports on the other centers. The Chronic Illness Center of San Francisco is described in the April 25th, 1959, issue of the *Journal,* p. 2034-2036.

DEAF—MENTAL HYGIENE

486. Rainer, John D. *(N.Y. State Psychiatric Institute, 722 W. 168th St., New York 32, N.Y.)*

Observations, facts and recommendations derived from a mental health project for the deaf, by John D. Rainer and Franz J. Kallmann. *Trans.,* Am. Acad. Ophthalmol. and Otolaryngol. Mar.-Apr., 1959. 63:2:179-186.

The 10th in a series of reports on the progress of the Mental Health Project for the Deaf being conducted at the New York State Psychiatric Institute since April, 1955. Organization of the pilot study and preliminary observations and findings are reported, as well as some practical recommendations made, mainly from the psychiatric point of view. Problems of the deaf in adjusting to a group of specialists in the clinical aspects of hearing were investigated. An immediate objective of the program was to combine basic research with the development of centrally located guidance centers and the training of personnel qualified to provide such guidance. Aspects of a program of public information and education aimed at securing cooperation in mental health planning for the deaf are discussed.

DEAF—PSYCHOLOGICAL TESTS

487. Larr, Alfred L. *(20451 Hart St., Canoga Park, Calif.)*

Measurement of native learning abilities of deaf children, by Alfred L. Larr and Earl R. Cain. *Volta Rev.* Apr., 1959. 61:4:160-162.

A report of an investigation to verify the usefulness of the Wechsler Intelligence Scale for Children in measuring the abilities of deaf children. If standardization of this test on a deaf population could be accomplished, its use might provide more meaningful assessment of hypacusic children. It is now widely used in the measurement of hearing children. Results of the study indicate the Scale is a useful tool for assessment of the nonverbal ability of deaf children. Evidence of its validity is the good correlation between this test and the Ontario School Ability Examination that has been standardized in schools for the deaf. Added advantage in use of the Scale is the ease of administering and scoring.

DENTAL SERVICE

488. Jorgensen, Niels B. *(Coll. of Medical Evangelists, Loma Linda, Calif.)*

Dental management of adult patients with cerebral palsy, by Niels B. Jorgensen, Milton G. Levine, and Charles T. Hurley. *J. Am. Dental Assn.* Dec., 1958. 57:6:843-850.

Describes technics for the clinical management of the most severely afflicted adult patients with cerebral palsy by intravenous premedication and local analgesia. The patient is relaxed by premedication with barbiturate, staying short of hypnosis. Small doses of scopolamine and meperidine are added, following the same procedure as that used with emotionally disturbed patients. Pentobarbital sodium is the barbiturate suggested. Five case histories illustrate effectiveness of the procedure in the adult cerebral palsied.

489. Losch, Paul K. *(300 Longwood Ave., Boston, Mass.)*

Dental care of the chronically ill child. *J. Am. Dental Assn.* Dec., 1958. 57:6:778-783.

A general discussion of the dentist's responsibilities and limitations in providing dental care for patients whose chronic illness complicates routine dental care. Often slight alterations of the usual procedures can aid in the rendering of adequate care; proper history taking can reveal conditions carrying special risks and requiring special care. Treatment of the chronically ill child differs from that of the well child only in that common sense concessions in the plan of treatment must be considered. Certain children are best served by hospitalization for a single session of dental work under general anesthesia.

See also 464.

EPILEPSY

See 497; 510.

EXERCISE

See 465.

GUIDANCE

490. Davis, Donald A. *(Mich. Dept. of Public Instruction, Div. of Voc. Education, Lansing, Mich.)*

Counseling the mentally retarded. *Voc. Guidance Quart.* Spring, 1959. 7:3:184-188.

Because the mentally retarded child is not able to gain status through academic achievement, he reacts with anger, aggression, or withdrawal. Counselors have a responsibility to advise teachers and parents on the need for providing training on a level with the child's capacity to achieve. Social and character training are more significant than academic achievement for this group. Technics useful in counseling with the mentally retarded are discussed briefly.

HARD OF HEARING—SPECIAL EDUCATION

See 519.

HEMIPLEGIA

See p. 163.

HIP

491. Phelps, Winthrop M. *(3038 St. Paul St., Baltimore 18, Md.)*

Prevention of acquired dislocation of the hip in cerebral palsy. *J. Bone and Joint Surg.* Apr., 1959. 41-A:3: 440-448.

A paper dealing entirely with methods for the prevention of acquired dislocation of the hip in patients with cerebral palsy; procedures for correction of dislocation are not included. In Dr. Phelps' experience and from statistics gathered at the Matheney School, Peapack, N.J., the incidence of dislocation in these patients has been found to be approximately 17 percent. Incidence is low in those with mild cerebral palsy; the condition occurs most commonly in those with spasticity and rigidity. Acquired dislocation of the hip in cerebral palsy appears to result from coxa valga, due to late weight-bearing; spasticity or contracture of the adductor muscles; or spasticity or contracture of the gracilis muscle. The three types are distinguishable from congenital dislocation of the hip and from each other on the basis of roentgenographic and clinical findings. Specific measures for prevention are discussed. The article is followed by comments from Dr. William Cooper and Dr. Lenox D. Baker.

492. Weissman, S. L. *(120 Achad Haam St., Tel-Aviv, Israel)*

Capsular arthroplasty in a paralytic dislocation of the hip. *J. Bone and Joint Surg.* Apr., 1959. 41-A:3:429-439.

Paralytic dislocation of the hip following poliomyelitis occurs infrequently; arthrodesis should be used only to correct the condition in adults. The author relates his experience in treating six children with paralytic dislocation of the hip by capsular arthroplasty, a technic devised by Colonna in 1930 for treatment of congenital dislocation of the hip. Experience with a greater number of patients and longer follow-up periods are needed to evaluate more precisely the value of the procedure in these patients. Results at the time of this report, however, indicate that capsular arthroplasty accomplished its purpose—to insure stability and mobility of the hip. Noticeable improvement in limp was observed; there was no

loss of joint motion despite paralysis of the hip muscles. The procedure is applicable only to children from 3 to 10 years of age.

HOBBIES

493. Burlingame, Alice Wessels *(3891 Oakhills Rd., Birmingham, Mich.)*

A therapeutic garden. *Hosp. Management.* May, 1959. 87:5:56-57.

Illustrates and discusses briefly a simple plan for a garden on hospital grounds where patients can enjoy therapeutic work to stimulate their recovery. Interested volunteers or staff personnel might be responsible for the project, or it might be developed under the Department of Occupational Therapy. Qualified community gardeners can be most helpful in working with patients.

MENTAL DEFECTIVES

See 471; 482; 490.

MENTAL DEFECTIVES—BIBLIOGRAPHY

494. Whitney, E. Arthur *(Elwyn Training School, Elwyn, Pa.)*

Mental deficiency, 1958. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:769-774.

Literature published during 1958 (18 references) is reviewed. The article covers current research in drug therapy, special education, psychology, speech correction, the treatment of mental deficiency in Russia and Poland, and genetic research. Dr. Whitney annually reviews significant periodical and pamphlet material in the field of mental deficiency research.

MENTAL DEFECTIVES—DIAGNOSIS

See 516.

MENTAL DEFECTIVES—ETIOLOGY

495. Wright, Stanley W. *(Univ. of California Med. Center, Los Angeles 24, Calif.)*

Investigation of families with two or more mentally defective siblings, by Stanley W. Wright, George Tarjan, and Lorraine Eyer. *A.M.A. J. Diseases of Children.* Apr., 1959. 97:4:445-463.

Previous studies in the literature on genetically determined biochemical abnormalities associated with mental defect are reviewed briefly. Observations suggest that, among families with two or more defective siblings, the likelihood is high that there are other family members with an inherited biochemical defect. A study conducted at a California state hospital for the mentally defective identified 61 such families; clinical observations are presented on the siblings and their parents. A later article will report on special biochemical observations. Disorders with a known biochemical abnormality were found in five families; four defective sibling groups had phenylketonuria, the fifth sibling group had gargoylism. Significant somatic, neuropathological, and psychopathological findings were noted in 7 families of the remaining 56 groups. Definite clinical diagnosis was made in five additional groups. The "defective sibling" method would appear to have value in developing further research studies.

MENTAL DEFECTIVES—MENTAL HYGIENE

496. Craft, Michael *(Balderfon Hosp., Notts, England)*

Mental disorder in the defective; a psychiatric survey among in-patients. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:829-834.

A brief review of the literature on mental disorders among mental defectives reveals discrepancies that are due in part, the author believes, to differing views on diagnosis, differing stresses, and differences in the populations studied. Two general trends observed were the rarity of true depressive illness among the "dull" and an increasing recognition of the importance of personality deviations and their contributions to the "psychotic outburst." A study of 324 certified resident patients in an English hospital (all with an IQ over 37) supports findings of previous studies that depressive illnesses among high grade mental defectives were rare and personality disturbances common. In the present survey patients with mental disorder suffered at least as much from the disorder as from mental defect. The results are felt to be particularly relevant since the English Royal Commission currently recommends the term "psychopath" to cover many patients now certified as feebleminded or moron.

MENTAL DEFECTIVES—PSYCHOLOGICAL TESTS

497. Beck, Harry S. *(Div. of Educational Research, Univ. of Virginia, Charlottesville, Va.)*

A comparison of convulsive organic, non-convulsive organic, and non-organic public school children. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:866-875.

As a school psychologist the author has noted that children falling within one of the three diagnostic groups (convulsive organics, nonconvulsive organics, and nonorganic mentally retarded) differ. He offers data from a research study of 160 children who have had neurological work-ups in addition to the psychological examinations he conducted. Variables studied were intelligence, variability in functioning, use of color, flaws occurring on Bender-Gestalt test, developmental problems, diagnostic behavior rating scale of personality in mentally deficient children, and ages at sitting, walking, speaking, weaning, and toilet training. Findings showed that each group seems to differ from the other two in some ways or that each group has certain characteristics not found in the other two. Limitations of the study are explained; much of the data was taken from referral blanks and health histories taken by the schools and was obtained from teachers, nurses, and parents on the basis of their observations.

498. Sievers, Dorothy J. *(Columbus State School, 1601 W. Broad St., Columbus 16, Ohio)*

A study to compare the performance of brain-injured and non-brain-injured mentally retarded children on the Differential Language Facility Test. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:839-847.

Describes the theoretical framework of the Differential Language Facility Test, its subtests, and procedures used in the present study. A summary of significant differences found among the different groups at various mental age levels on the test is presented. In this study normals were found to be superior to the brain-injured in over-all language ability; this appeared to increase with mental

age. Normals also scored higher than both nonbrain-injured retarded and brain-injured retarded children on subtests requiring expression without semantic meaning. Nonbrain-injured scored higher than brain-injured on those subjects involving the making of semantic connections between visual objects.

See also 466.

MENTAL DEFECTIVES—SPECIAL EDUCATION

499. Gibson, David *(Ontario Hospital School, Smith Falls, Ont., Canada)*

Academic success among high grade hospitalized mentally retarded children as a function of intelligence and etiological classification, by David Gibson, Ann E. Jephcott and Rosemary Wilkins. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:852-859.

A study to determine whether etiological classification is a relevant variable for the academic achievement of mental defectives in arithmetic, writing, language, spelling, reading, social studies, and music. It was also questioned whether standard psychometric scores could predict academic success in these subjects for a mentally retarded population and with equal precision for each etiological category. Outstanding differences were found to occur for predictive success of IQ per school subject, depending upon cause of the mental deficiency. Prediction was progressively less reliable through the endogenous and brain injury divisions, a discrepancy hard to reconcile with the fact that the various etiologies do about as well in mean mark per subject and have similar mean intelligence quotients. Length of prior community schooling failed to have any effect on academic success in the institution. Those in the endogenous group appear to reach the highest level in the academic program more frequently than those in the exogenous group and those with mental deficiency of undetermined origin.

500. Goldman, William J. *(State Teachers Coll., Fitchburg, Mass.)*

Identification of teaching practices peculiar to special classes of educable retarded children in selected Massachusetts schools. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:775-777.

Reports findings of a study to determine the relative values of teaching methods peculiar to special classes for educable retarded children and to compare differences between teaching practices in special and regular grade classes. A survey form was administered to 100 special class teachers of the mentally retarded and to a similar number of teachers from grades one through six. Analysis of the findings led to several pertinent conclusions—1) that curriculum experiences in special classes are designed for more emphasis on individual differences; 2) active participation in first-hand experiences promoted greater success in learning among the mentally retarded; and 3) the "unit of experience" in special classes is planned to emphasize more purposeful related activities.

See also 461.

MENTAL DEFECTIVES—SPECIAL EDUCATION—THE NETHERLANDS

501. Brown, Nora *(Univ. of Sheffield, Sheffield, England)*

Special education in the Netherlands; 2. The education of mental defectives. *Special Education.* Mar., 1959. 48:2:14-19.

The Netherlands is probably unique in that there are twice as many schools for mental defectives as for all other categories of handicapped children taken together. The Dutch definition of the term mental defectives includes both the educable and the uneducable as defined in other countries. The great majority of these special schools in the Netherlands are day schools. Two residential and one day school are described and observations on the education of mental defectives in the Netherlands are given. Separate provisions for the educable and uneducable are made; the Ministry of Education is responsible for administration of the program.

MENTAL DEFECTIVES—SPECIAL EDUCATION—BIBLIOGRAPHY

502. U. S. Office of Education

Education of the severely retarded child; a bibliographic review, by Harold M. Williams and J. E. Wallace Wallin. Washington, D.C., Govt. Print. Off., 1959. 24 p. *(Bul. 1959, no. 12)*

A bibliography of more than 300 references, the majority of which have been published since 1950 and up to June, 1958. Brief annotations indicate the nature of each reference; experimental, theoretical, and practical aspects of education of the severely retarded child are covered. An introductory section outlines briefly the historical background of educational provisions for this group of children, relatively neglected until recent years. Special needs and problems of the group, administrative aspects of community school programs, research in curriculum development, teacher preparation, social agency participation, and education of institutionalized children are covered by the references.

Available from U.S. Superintendent of Documents, Washington 25, D.C., at 15¢ a copy.

MENTAL DISEASE—SOCIAL SERVICE

503. Slear, M. Genevieve *(Wayne Co. Consultation Center, 1214 Griswold St., Detroit, Mich.)*

Psychiatric patients; clinically improved but socially disabled. *Social Work.* Apr., 1959. 4:2:64-71.

Chronically ill psychiatric patients, now treated with tranquilizing drugs, may attain a state of remission that makes return to the community theoretically feasible. The responsibility for providing posthospital patients and their families with social services must be shared by community agencies. The social worker can provide help in developing habits in patients that will make them more socially acceptable and more independent of those who will be caring for them in the community. The reluctance of families to accept patients back into the home must be overcome in many cases. Practical considerations that the social worker must understand are discussed. If objectives are too ambitious, frustrations and failure result.

MONGOLISM—SPECIAL EDUCATION

504. Blessing, Kenneth R. *(637 Orchard Dr., Madison, Wis.)*

The middle range mongoloid in trainable classes. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:812-821.

A survey questionnaire sent to Wisconsin's teachers of trainable children was used to obtain information on their attitudes toward children with mongolism classified as middle range. Data on the most satisfactory behavioral aspects and management problems, on areas of the greatest and least amount of growth and development in trainable mongoloids, on the current status of postschool mongoloids, and on personal characteristics and qualifications of teachers employed in such classes are included. Favorable attitudes indicated by the findings suggest that more attention be given future planning of programs for mongoloid children in the community. Problem areas for educators, parents, and research workers are pointed up. The issue of terminating school at age 16 and the related problem of "after 16—what?" are major ones.

MULTIPLE SCLEROSIS—ETIOLOGY

505. Mackay, Roland P. *(8 S. Michigan Ave., Chicago 3, Ill.)*

Multiple sclerosis in twins and their relatives; preliminary report on a genetic and clinical study, by Roland P. Mackay and Ntinos C. Myrianthopoulos. *A.M.A. Arch. Neurol. & Psychiatry.* Dec., 1958. 80:6:667-674.

A report of a detailed study of 54 pairs of twins and their relatives. A requirement for selection of the subjects was that one of each pair of twins must have multiple sclerosis. Purpose of the study was to compare the rate of concordance among monozygotic with that among dizygotic twins and to compare prevalence of the disease among close relatives with that in the general population. Case descriptions, omitted in this preliminary report, will be included in full in a final report. Data from the study reveal too small a concordance to prove definitely the operation of a genetic factor. Factors influencing the findings and tending to reduce the rate of concordance are discussed. It is suggested there is a distinct possibility that a genetic factor is one agent in the causation of the disease. The study also confirms findings of previous studies in regard to the more frequent finding of multiple sclerosis among relatives of patients with the disease than in the general population.

506. Miller, Henry

Aetiological aspects of multiple sclerosis, by Henry Miller and Kurt Schapira. *Brit. Med. J.* Mar. 21 & 28, 1959. 5124 & 5125. 2 pts.

A review of the history of etiologic theories concerning multiple sclerosis. The paper's primary emphasis is on the possible relationship between acute disseminated encephalomyelitis and multiple sclerosis. At present there is controversy over two opposing concepts—first, that the disease is caused by a specific infective agent, most probably a virus; second, that the disease represents one clinical form of a characteristic pathologic response in the nervous system, variable in localization and tempo, and related in some way to a disturbance in the balance of immunity and allergy. The clinical considerations—symptomatology, natural history, prognosis, and etiological background—relevant to the possible relationship between multiple sclerosis and acute disseminated encephalomyelitis are discussed in the second part of the article. In the authors' opinion the allergic or immunological theory of multiple sclerosis currently provides the most useful working hypothesis for further research.

MUSCULAR DYSTROPHY—MEDICAL TREATMENT

507. Archibald, Kenneth C. *(525 E. 68th St., New York 21, N.Y.)*

A study of contractures in muscular dystrophy, by Kenneth C. Archibald and Paul J. Vignos. *Arch. Phys. Med. and Rehab.* Apr., 1959. 40:4:150-157.

A review of the status of 43 patients with muscular dystrophy attending the Muscular Dystrophy Clinic, University Hospitals of Cleveland, for the past three years. Classification of patients has been according to a 10-step functional scale. Certain significant correlations have been found between functional status and muscle strength on the one hand and the degree and progression of joint contractures. The effect of different types of contractures on the lower extremity is noted. A well-planned and executed home exercise program, the use of splints and braces, and, in some instances, surgery to correct contractures can aid in maintaining the patient on an ambulatory status.

508. Van Diermen, J. *(St. Peter's Hosp., Albany, N.Y.)*

Muscular dystrophy: IX. Body growth, muscle strength, and serum solutes during methyltestosterone-KCl therapy, by J. Van Diermen (and others). *A.M.A. J. Diseases of Children.* Apr., 1959. 97:4:439-444.

Daily administration of methyltestosterone and of potassium chloride, in amounts sufficient to induce definite endocrine changes and to accelerate bone age to a slight degree, failed to produce objective improvement in muscle performance and did not appear to alter the pretreatment rate of decrease in muscle strength in 13 boys and two adults with muscular dystrophy. The increase in serum creatine, noted in these patients, is also a characteristic response to methyltestosterone in healthy controls. This type of therapy canceled the slight retardation in skeletal age, often observed in muscular dystrophy, but had no effect on other aspects of body growth. 21 references.

MUSCULAR DYSTROPHY—SPECIAL EDUCATION

509. Shearn, E. J.

Muscular dystrophy; what are we doing about it? *Special Education.* Mar., 1959. 48:2:24-27.

A brief description of educational and recreational activities provided for muscular dystrophy patients at Queen Mary's Hospital for Children, Carshalton, England. All the 20 patients in this group are severely disabled; they were admitted to the hospital only when the home and special schools could no longer continue their care. Problems in providing suitable activities and in motivating patients are discussed.

MUSIC THERAPY

See 462.

NEUROLOGY

510. Perlmutter, Irwin *(401 Coral Way, Coral Gables, Fla.)*

Cerebral hemispherectomy in infantile encephalopathy; indications for and results of, with report of a case, by

Irwin Perlmutter and Richard E. Strain. *J. Fla. Med. Assn.* Feb., 1959. 45:899-902.

A brief review of studies reported in the literature on cerebral hemispherectomy in infantile encephalopathy, with a case report of a patient with Sturge-Weber syndrome, infantile hemiplegia, unmanageable convulsions, and severe personality disorder who was treated surgically. Pronounced improvement in behavior and personality has resulted; he has gone as long as five months at a time without any type of seizure. The procedure is recommended only for those patients who have had the brain damage from infancy. Physical functioning of such patients, the authors state, may be slightly altered by changing a spastic weakness to a more flaccid one, but electrical function and personality are often dramatically affected favorably.

See also 517; p. 163.

NURSING

511. Peterson, Rosalie I. *(Natl. Cancer Institute, Bethesda, Md.)*

Overview of rehabilitation nursing; is it new or is it old? Discussion, by Myrtle N. Quamen. *Military Med.* Apr., 1959. 124:4:284-291.

For the nurse to function as a constructive member of the rehabilitation team, she must understand the scope of the problem within the community—the incidence, prevalence, and mortality rate in chronic disease and crippling conditions, the economic, psychological, and medical aspects of rehabilitation, and preventive measures to reduce disability. Fundamentals of rehabilitation nursing must be understood and practiced in patient care; basic objectives in rehabilitation nursing are listed. In the discussion by Myrtle N. Quamen, some problems related to rehabilitation that may be expected in the "space" age are considered.

OCCUPATIONAL THERAPY

See 463.

OCCUPATIONAL THERAPY—PERSONNEL

512. World Federation of Occupational Therapists

Establishment of a program for the education of occupational therapists. n.p., The Federation, 1958. 19 p.

Library also has Spanish translation titled: *Creacion de un programa educativo para terapistas ocupacionales.* New York, Internatl. Soc. for the Welfare of Cripples, 1959. 19 p.

Prepared in answer to requests for guidance in setting up programs for the education of occupational therapists in countries where such preparation has not been available, the pamphlet offers information on procedures for the establishment of training programs, minimal facilities required for an occupational therapy course, financing and staffing, criteria for the selection of students, subject content of the course, and relationships with hospitals offering educational courses. Additional information in the appendixes covers a definition of the function of occupational therapy, suggested minimum educational standards and staff qualifications, and a list of schools of occupational therapy already existing in other countries. The Spanish translation, made possible through a grant from the Gustave and Louise Pfeiffer Foundation, was prepared for use in Spanish-speaking countries and is available from the International Society for the Welfare of Cripples, 701 First Ave., New York 17, N.Y., at 50¢ a copy.

OLD AGE—FICTION

See 468.

OLD AGE—MEDICAL TREATMENT

513. Moskowitz, Eugene *(220 N. Columbus Ave., Mt. Vernon, N.Y.)*

Aged infirm residents in a custodial institution; two-year medical and social study, by Eugene Moskowitz (and others). *J. Am. Med. Assn.* Apr. 25, 1959. 169:17:2009-2012.

Findings of a two-year study of a selected group of 115 aged, infirm persons who were residents of a county home illustrate the value of a system of disability classification that served as an effective index for recording the physical and mental status of patients at any given time. The introduction of a physical rehabilitation program more than three years ago provided a means of meeting changing needs of the individual. A continuous process of rehabilitation was shown to be necessary to achieve restoration, reactivation, and maintenance of gains. The bedridden patient in a domiciliary institution constitutes the major problem in nursing care; comparatively minor defects, if noted early, can be treated with the proper corrective measures to insure that patients function to the maximum of their abilities.

ORTHOPEDICS

514. Crane, Lawrence *(265 Western Promenade, Portland 4, Me.)*

Femoral torsion and its relation to toeing-in and toeing-out. *J. Bone and Joint Surg.* Apr., 1959. 41-A:3:421-428.

The various causes of toeing-in and toeing-out are mentioned briefly; either condition can be caused by changes at any level of the lower extremities. The author reviews findings in a series of 72 children seen during the past eight years; all had lower extremities that twisted either inward or outward in the presence of relatively normal feet and tibiae. The most significant finding was a definite difference in the degree of internal and external rotation of the hips. Roentgenographic study revealed abnormal femoral torsion in these children. Dr. Crane describes methods for determining femoral torsion and the angle of anteversion. Treatment and results and the possible causes of abnormal femoral torsion are discussed.

PARAPLEGIA

See 525.

PARENT EDUCATION

515. Caulfield, Thomas E. *(520 Commonwealth Ave., Boston 15, Mass.)*

Guides to improving parental attitudes. *New Outlook for the Blind.* Apr., 1959. 53:4:128-131.

In same issue: Helping parents of handicapped children, Eleanor S. Reid. p. 123-128. (Reprinted from: *Children*: Jan.-Feb., 1958. 5:1:15-19)

A psychiatrist, in this address presented at the Ohio

Institute for Parents in May, 1958, advised parents on the development of attitudes that will provide a climate of freedom for their blind children to enable them to grow emotionally into adults capable of coping with their world. Attitudes cannot be imposed but must grow from within the self. The role of experts is to provide information on possible resources; it is up to parents to make the best use of the help available. Dr. Caulfield, in addition to his private practice, serves as the consulting psychiatrist at St. Paul's Rehabilitation Center for the Blind, Newton, Mass.

The article by Mrs. Reid was annotated in *Rehab. Lit.*, March, 1958, #302.

PHYSICAL EFFICIENCY

516. Francis, Robert J. *(Univ. of Wisconsin, Madison, Wis.)*

Motor characteristics of the mentally retarded, by Robert J. Francis and G. Lawrence Rarick. *Am. J. Mental Deficiency.* Mar., 1959. 63:5:792-811.

Reports an investigation of the gross motor abilities of mentally retarded children. Subjects of the study were 284 children attending special classes in public schools of Madison and Milwaukee, Wis. Age and sex trends in certain gross motor abilities were determined; a comparison of motor achievement levels of the mentally retarded with normative data on normal children was carried out. On a battery of 11 gross motor tests, age trends in strength for each sex followed approximately the same pattern as those for normal children, although at a lower level at every age. The means of performance for both mentally retarded boys and girls on most of the tests were from two to four years behind the published age norms of normal children. The discrepancy between normal and mentally retarded children tended to increase with each advancing age level. Intelligence as measured by standardized intelligence tests was positively correlated with most of the motor performance tests. Findings would appear to indicate that the degree of motor retardation in the mentally retarded is perhaps greater than has previously been supposed. 29 references.

PHYSICAL THERAPY

517. Kabat, Herman *(40 Fountain St., Providence 3, R.I.)*

The practical application of proprioceptive neuromuscular facilitation, by Herman Kabat, Margaret McLeod, and Celia Holt. *Physiotherapy.* Apr., 1959. 45:4:87-92.

A discussion of the practical application of proprioceptive neuromuscular facilitation technics and the physiological principles upon which they are based. Essential to the practice of these technics is an accurate evaluation of the patient's functional capacities; flexible use of the technics will achieve good results.

See also 465; 467; p. 163.

POLIOMYELITIS—EQUIPMENT

518. Murray, Don

A father's helping hand. *Today's Health.* May, 1959. 37:5:38-39, 55-57, 61.

Describes a mechanical hand muscle invented by a nuclear physicist to aid his daughter who was paralyzed as a result of poliomyelitis. Without the pinching movement of the thumb and first two fingers, the paralyzed hand is useless to perform normal hand activities. Research centers in various parts of the country are working to perfect the device, which should prove a boon to those crippled by strokes, poliomyelitis, arthritis, spinal injuries, and a host of nerve and muscle disorders. The article is digested in *Reader's Digest,* May, 1959, p. 115-118.

POLIOMYELITIS—MEDICAL TREATMENT

See 492; 522.

PSYCHOLOGY

519. Elser, Roger P. *(State. Dept. of Education, Charleston 5, W. Va.)*

The social position of hearing handicapped children in the regular grades. *Exceptional Children.* Mar., 1959. 25:7:305-309.

In any discussion of the placement of hearing-handicapped children in public schools, the advantages of integration as opposed to segregation in special schools or classes must be considered. Too often, however, the social aspects of the situation are ignored. This article, based on a doctoral dissertation completed at George Peabody College, Nashville, Tenn., reports findings of a study to determine to what extent hearing-handicapped children were accepted, isolated, or rejected by classmates with normal hearing. Although data showed that the hearing-handicapped as a group were not as well accepted or did not score as high as the average for their classmates, sociometric tests should not be used as the sole basis for segregating this group of the handicapped. Class placement should be determined on an individual case basis after evaluating academic achievement in the child's present school placement and his social adjustment to the situation.

520. Epsteen, Casper M. *(25 E. Washington St., Chicago 2, Ill.)*

Psychological impact of facial deformities. *Am. J. Surgery.* Dec., 1958. 96:6:745-748.

An obvious facial deformity is considered a handicap since most people are subconsciously prejudiced against those with such disfigurement. Psychological reactions of those with deformities acquired through injury or disease in adult life are often more severe than reactions to congenital disfigurement. Most commonly observed psychological effects of deformity are inferiority and shame, modification of self-expression (withdrawal, aggression), and antisocial tendencies. Those with facial disfigurement can be aided by surgical correction in some instances, but they also need friendly understanding, guidance, and social recognition.

See also 470; 472.

RECREATION

521. Prendergast, Joseph *(Natl. Recreation Assn., 8 W. Eighth St., New York 11, N.Y.)*

Recreation for the ill and handicapped. *Hosp. Management.* May, 1959. 87:5:24, 42.

Guest editorial.

Describes functions of the Consulting Service on Recreation for the Ill and Handicapped, organized in 1953 by the National Recreation Association to provide guidance and consultation to hospitals, nursing homes, local community groups, colleges, and special agencies in this area of recreation. The Service conducts surveys in problems of the field, inservice education programs in hospitals, and workshops on recreation in the medical setting, and gives aid in community recreation services.

REHABILITATION CENTERS

See 484.

RESPIRATION

522. Sutcliffe, R. L. G.

Mobilising patients receiving intermittent positive-pressure respiration, by R. L. G. Sutcliffe and J. M. K. Spalding. *Lancet.* Apr. 4, 1959. 7075:706-707.

Describes a mobile chair equipped with a small but reliable respirator, a tracheotomy tube, and a portable suction pump for use with patients who require intermittent positive-pressure respiration. The apparatus has proved satisfactory in aiding the severely paralyzed patient to become mobile. Illustrations show construction details of the collar connection to tracheotomy tube and the chair in use.

SHOULDER

See 467.

SPECIAL EDUCATION

See 460.

SPECIAL EDUCATION—JAPAN

523. U. S. Office of Education

Japan; three epochs of modern education, by Ronald S. Anderson. Washington, D.C., Govt. Print. Off., 1959. 219 p. illus., charts. *(Bul. 1959, no. 11)*

Chapter VIII: Special programs.

The third such study to be published concerning education in Japan (previous studies appeared in 1875 and 1900), this report traces the history of the modern school system from the time of the Meiji Restoration in 1868 to the present day. Discussed in chapter 8 are public programs for care and education of the handicapped and for social (adult) education. Compulsory education for the handicapped was established in 1947; it continues to be largely vocational. Revision of the child welfare law in 1957 resulted in greatly expanded programs for the physically and mentally handicapped.

Available from U.S. Superintendent of Documents, Washington 25, D.C., at $1.25 a copy.

SPECIAL EDUCATION—BIBLIOGRAPHY

524. Kvaraceus, William C. *(9332 Bay State Rd., Boston, Mass.)*

Selected references from the literature on exceptional children, by William C. Kvaraceus and Jane E. Dolphin. *Elementary School J.* Apr., 1959. 59:7:404-418.

A bibliography, published annually, including general references on child development and special education, as well as references on education of the blind and partially seeing, the physically handicapped, the deaf and hard of hearing, their special health problems, speech disorders, the mentally retarded, the emotionally disturbed, juvenile delinquency, and the superior and gifted. Literature covered is that published during 1958. 139 references.

SURGERY (PLASTIC)

See 520.

UROLOGY

525. Morales, Pablo A. *(550 First Ave., New York 16, N.Y.)*

Management of the bladder in traumatic paraplegia, by Pablo A. Morales and Robert S. Hotchkiss. *Arch. Phys. Med. and Rehab.* Apr., 1959. 40:4:141-149.

Discusses normal bladder neurophysiology, bladder disturbances in paraplegia, the necessity for a complete urologic examination to evaluate the type and degree of vesical dysfunction and its complications, initial treatment of the patient with a recent cord injury, and a bladder training program. Follow-up care for the paraplegic patient is essential throughout his life to insure good renal function.

WALKING

See 514.

WHEEL CHAIRS

See 522.

Events and Comments

Conferences on Rehabilitation Held in Pittsburgh

A SERIES of four weekly forums and conferences on the interdisciplinary approach in rehabilitation was sponsored in May by the Health Research and Services Foundation as part of the Pittsburgh Bicentennial celebration. Themes of the sessions were: rehabilitation is everybody's business; fashioning and protecting childhood foundations; safeguarding and using adult resources; and ensuring years of fulfillment through comprehensive health services for the aged.

Conference Held on Mentally Retarded

THE TOPIC of the Annual Spring Conference of the Training School of Vineland (N.J.) held May 10-11 was "Practical Problems." The co-ordination and integration of services of treatment, training, and management of the mentally retarded were discussed. The conference was sponsored by the school and the New Jersey Department of Institutions and Agencies and aided by a grant from the National Institute of Mental Health.

Needs in Recreation Reported

A SPECIAL REPORT, *Toward Life and Health,* has been released by the Consulting Service on Recreation for the Ill and Handicapped of the National Recreation Association, 8 W. Eighth St., New York 11, N.Y. It sets forth the immediate need for organized, professionally conducted recreation programs for the physically ill, the mentally ill, and the handicapped and homebound, stressing the importance of recruitment, scholarships, expansion in curricula, and the publication and promotion of information and training material.

Appointed Head of International Committee on the Aging

DR. MICHAEL M. DASCO, Director of Physical Medicine and Rehabilitation, Goldwater Memorial Hospital, New York City, has been appointed chairman of the international committee of the National Committee on the Aging, National Social Welfare Assembly. The committee will exchange information about health and welfare programs for older persons with leaders of programs in foreign countries.

Identification Discs for Disabled Used on Buses

AN IDENTIFICATION disc for use by the disabled while on public transport is described by Dr. J. M. M. McKenzie, of the Astley Ainslie Hospital, Edinburgh, in a special article in the April 18, 1959, issue of *Lancet.* Worn mounted on elastic and on the inside of the wrist, it can be covered by a sleeve but shown while both hands are kept free. The disk is 1½ inches square, made of clear Perspex, and painted with special fluorescent paint. On the front surface a T (for transport) is superimposed. Depots in the Edinburgh area were circularized and a bus company cooperated in a successful four-week pilot study. In a full-scale six-month experiment, 42 discs were issued (5 temporary, for those with fractured legs). Unfailing help and courtesy on the part of drivers and conductors were reported by 25 persons. Eleven said they were sometimes helped. Of six who reported no success, four had not used their discs because of embarrassment, and two, upon finding their discs not recognized, had not tried again.

Outstanding Books Selected

MEMBERS OF THE STAFF of the Education Department of the Enoch Pratt Free Library of Baltimore selected as outstanding 41 of the nearly 700 publications on education issued in 1958. Among the 31 on which there was general agreement were: *Education of Exceptional Children and Youth,* edited by William M. Cruickshank and G. Orville Johnson (Prentice-Hall, Englewood Cliffs, N.J.), and *Early Education of the Mentally Retarded,* by Samuel A. Kirk (University of Illinois Press, Urbana).

Rehabilitation Center Dedicated in Iowa

ON EASTER SUNDAY, Mar. 29, the Younker Memorial Rehabilitation Center of Iowa Methodist Hospital, Des Moines, was dedicated. The 120-bed center operates as an integral part of the hospital; Don W. Cordes is hospital administrator. Children who are treated by the center as inpatients stay at the hospital's pediatric unit, the Raymond Blank Memorial Hospital for Children. The average stay of all patients is about six weeks.

New York Classroom Teachers Attend Orthopedics Course

NEW YORK CITY school teachers have been attending a course aimed at helping them recognize orthopedic ailments in the early stages and at aiding them handle handicapped children. The course, held at the Hospital for Joint Diseases, was sponsored by the Board of Education's Bureau for the Education of the Physically Handicapped, Play Schools Association, and the Visiting Nurse Service. The 15 weekly one-hour-and 40-minute sessions, held between Feb. 17 and June 2, have consisted of lectures, discussions, and films. Physicians, social workers, rehabilitation and school guidance counselors, visiting nurses, and educators have participated.

Help Offered to Laryngectomees

THE AMERICAN CANCER SOCIETY, 47 Beaver St., New York 4, N.Y., has asked for help in locating persons who have lost their voices because of cancer. The Society states that 95 percent of the 12,000 to 15,000 persons who have had laryngectomies are physically able to talk with proper training.

An artificial aid to speech in such persons has been developed by Dr. Herbert K. Cooper, Lancaster (Pa.) Cleft Palate Clinic, who says use of his device can be learned in 24 to 28 hours. The main components are an electric pulse generator and a tone generator, or "emitter," located at the base of a plastic speaker tube that directs sound into the mouth cavity.

A.M.A. Approves Booklet on Surveying Rehabilitation Facilities

A BOOKLET *Medicine's Back to Work Plan* has been approved by the American Medical Association's Committee on Rehabilitation. It is based on recommendations endorsed by the A.M.A. House of Delegates last December, urging the formation of rehabilitation committees by the state medical associations. The committees would review local rehabilitation programs and establish liaison with other groups interested in the disabled. State associations were also asked by the House to urge county societies to survey county and community rehabilitation facilities. The booklet suggests means of implementing the suggestions and compiling data. Copies are available from: Committee on Rehabilitation, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

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